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THE LIMITATIONS OF X-RAY TREATMENT OF SKIN DISEASES*

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IN the past eight years, at the Massachusetts General Hospital and in private practice, there have been about 1800 patients treated with x-ray for diseases of the skin and about 10,000 treatments have been given to these patients. I have taken much interest in these cases and formed certain impressions about them which may be of some help to others. I realize that some of these comments may seem very elementary, but it does no harm to review occasionally our fundamentals in the pursuit of the new, the unusual, or the spectacular. In speaking of the limitations of this form of therapy I do so with the belief that in this era of enthusiasm over non-medicinal therapy, it is well to pause and give thought to the fact that x-ray and radium have greater potentialities for the production of dangerous effects than any other form of therapy. The past thirty years have brought this fact home reiteratively, but the lesson has had to be learned over and over again in the bitter field of individual experience.

In considering Roentgen therapy from the point of view of its limitations the three factors of the greatest importance are: first, the physical characteristics of the apparatus which is to be used; second, the characteristics found in the individuals to be treated; and third, the pathological condition of the skin which is under treatment. It is not my purpose, and indeed I am not qualified, to discuss the limitations of the purely physical factors, but the limitations found in the individual and the restrictions imposed by the disease are subjects for consideration at the present time.

We are all conscious of the widely varying types of skin occurring in different individuals, and it behooves us to weigh these differences as carefully as we weigh the differential diagnosis of the condition to be treated. In a given person, therefore, requiring radiotherapy one must balance rather carefully the following factors:

1—Age. Younger individuals as a rule are slightly more sensitive to radiation,

2—Sex. Females are slightly more sensitive than males,

3—Coloration. Blondes are distinctly more sensitive than brunettes,

4—Texture. A thin fine-grained skin is somewhat more sensitive,

5—Congestion. A red, hyperemic area is more sensitive; for example, a florid acne demands much more careful treatment than the pale type,

6—Site. Certain areas of the body are somewhat more sensitive than others, for example, the face and flexor surfaces are rather sensitive,

7—The type of tissue to be treated. The actively functioning glands and the reproductive organs are the most sensitive.

In addition there are certain other factors which must be weighed in our consideration of the individual. These, too, are matters which most of us almost automatically take under advisement. I refer especially to the question of previous recent treatment. Perhaps the word recent should be omitted, for the history of any previous x-ray treatment to the part to be treated needs to be studied extremely carefully. If there is any doubt about the amount and the technic employed, it is better to be wary of using more unless a malignant condition is at stake, when a greater chance may be taken. Such cases treated previously by x-ray at least need more careful treatment, and in the non-malignant cases should have a smaller total dosage. This does not hold as true where only a few fractional doses are to be given, but is of extreme importance in the cases where a long series of treatments or more intense treatments are under consideration.

Not only the previous x-ray therapy but other treatment, particularly that in the last week or ten days before the proposed treatment by x-ray, must be investigated. And the treatment to be given after the radiation must likewise be carefully considered. Numerous cases of x-ray doses exaggerated by other treatment have found their way into the literature. Remer, and MacKee and Andrews have published lists of irritants including sulphur, iodine, mercury, tar, chrysarobin, etc., and attention has often been called to the fact that local treatment will increase the effect of x-ray dosage. Not only will drugs increase the effect, but heat or anything which causes a vascular dilation of the part being treated will likewise augment the action of x-ray. Ultraviolet light and sunlight in doses sufficient to produce erythema, administered too near a

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†For record and address of author see "This Week's Issue," page 723.

dose of x-ray, definitely tend to exaggerate the action of the x-ray, and if enough radiation has been employed, may tend to bring about an undesired result.

Not only may our therapy be limited to some extent by one or more of these items, but there is the possibility that there may be a variation in the susceptibility of a given individual, as has been proven in the case of susceptibility to the toxin of poison ivy. Certainly the advent of a hyperthyroidism would increase our limitations somewhat and the same may be true of other conditions. The discussion of susceptibility raises the question of idiosyncrasy. Is there any such thing as idiosyncrasy to x-ray, that is, an untoward reaction to x-ray which cannot be explained by some of the above factors? Inasmuch as a definite sensitiveness to other physical agents such as sunlight and cold, has been reported by Duke and others, I think that it is fair to assume that the same is true for x-ray, but I feel that altogether too often the matter of idiosyncrasy has been blamed for after-results which possibly could have been averted by a more careful consideration of some of the factors just mentioned.

In this connection it is a good practice to use, much more frequently than is done, a biological test on the individual to be treated. The exposure of three or four small areas of skin to different doses of x-ray takes comparatively little time and may indicate a safe limit for that individual, epecially where a series of treatments is contemplated, as in eczema or acne. This is all the more advisable when one considers the following figures given by Mackee of a group which was tested in this way: Five per cent. of the group showed an erythema after ¼ skin unit, and 15 per cent. after ½ skin unit. Since an erythema definitely increases the predisposition to telangiectasis and atrophy, and since there is no way of telling which ones will develop these complications, it is always well to use the utmost care in testing and in treating these cases.

In discussing the restrictions imposed by the pathological conditions presented by the skin I wish to emphasize the physiological action of the x-ray upon it. These effects on the skin, if carefully analysed, furnish us with perfectly rational fundamental reasons for using x-ray treatment in cutaneous diseases. But these pathological conditions need to be carefully differentiated in order that each may receive its proper treatment, and in addition the varying phases of the different diseases may need to be carefully balanced.

The first of these fundamental reasons for treatment is to inhibit glandular activity. It has long been known that the most active cells (and the actively secreting cells of glands belong to this group) are the most susceptible to radiation. This applies equally well to both oil and sweat glands, and increased activity of both kinds of glands are excellent prospects for Roentgen ray therapy. Hyperidrosis and acne furnish good examples of this group of diseases.

In hyperidrosis it is to be remembered that the sweat glands are much deeper seated than the oil glands and therefore a little filtration is desirable, and that a dose of from ½ to ¾ skin unit does better than the smaller unfiltered doses. Correspondingly longer intervals between treatments are therefore necessary. A restriction of from five to six doses should be imposed and an interval allowed before further treatment is given. Any additional x-ray therapy should be given with a great deal of caution.

The treatment of acne is a subject in which I have been particularly interested because of the many excellent results which I have seen take place and also because of the change in the mental attitude of the individual as the acne clears up. There have been about 400 of these cases which have had treatment by x-ray and I am engaged at present in looking them over carefully for the purpose of clarifying the impressions which I have received as I have treated them. In the first place, not all cases of acne need x-ray treatment, for a number of them will respond to an acne regime with proper local treatment, and will remain in satisfactory condition with attention to hygiene during the acne period of life. Among the more important cautions to be observed in the treatment of acne are the following: a careful history should be taken to ascertain whether there has been any previous x-ray treatment and the amount; a long period of treatment with sulphur just preceding x-ray treatment requires more careful dosage; severe mechanical irritation by massage or harsh scrubbing makes the skin somewhat more susceptible; severe sunburn should be avoided during the course of treatment; thin skinned and blonde skinned individuals need special care in the dose used and much more careful observation as the course continues; the full blooded or congested type likewise need careful attention in the same way. The types which give the best results are the very oily type, either the papular or the pustular variety, the dark complexioned type, and the slightly older type, that is the individuals near the upper edge of the acne age. The back and the chest seem to stand slightly more than the face, and it is worth noting that any atrophy at all or any telangiectases show up very much more plainly on the face than elsewhere. I believe that treatment, after the course of x-ray is finished, with small doses of ultraviolet or of sunlight is oftentimes of much help, though of course the time element may possibly be the largest factor, the complete physiological effect of the x-ray not reaching its peak in some cases till two or three months after the course is stopped. Some cases develop a considerable pigmentation during treatment, but the blonde skin always gives me more concern than the pigmentation which develops. In

regard to the amount of treatment which is safe, I believe that the average can be placed at three or four skin units; the blonde should surely have less and the very oily and dark skin can stand more. Further treatment of recurrences should have some filtration, and should be given with great caution. Acne rosacea needs to be treated carefully because of the congestion, and the prognosis is not as good as in the case of the younger type of acne. Pusey has well said that the treatment of acne by x-ray furnishes one of the best tests of x-ray technic and the standardization of a given apparatus.

The second indication for treatment by x-ray is to aid in the absorption of infiltrated areas of disease in the skin. This is based on the well known sensitiveness of cells of the lymphocyte series to radiation whereby they become disintegrated and disappear under treatment. Thickened patches of eczema and lichen planus, and verruceous tuberculosis are examples of diseases which come in this category. Filtration can often be used to advantage. One must always guard against the tendency of overdosage in a chronic recurrent disease such as eczema. The general treatment of tuberculosis must always be considered as well as the local.

Eczema is such a common disease that it is worth considering further. There are many types, but the acute types and perhaps the vesicular variety do not respond well to treatment. The itching is relieved in many cases and thus a portion of the vicious circle, the scratching or mechanical irritation, is prevented. One must use care in regard to the other agents prescribed for the skin during treatment and avoid irritants. Greasy applications, I believe, tend to increase the liability to erythema. An exhaustive inquiry into causal factors by both history and detailed examination is absolutely essential in order to remove such factors and make the course of x-ray treatment as short as possible. Again let me emphasize the need of care in the use of x-ray in a disease with such a tendency to reappear. As one is cautious with arsenic in psoriasis, so must one be cautious with x-ray in eczema, for both are useful agents but the possibility of late ill effects from over-use must be borne in mind.

A third reason for the use of x-ray therapy is to relieve itching. It does not work every time any more than any other agent, but it is an extremely useful method. Its use has already been referred to in eczema, and it is often employed to advantage in pruritus ani, pruritus vulvae, lichen planus, mycosis fungoides, etc. The itching of urticaria is apparently not relieved by x-ray. The same remarks which have been made in regard to the limitations of x-ray treatment in eczema can well apply here with respect to overdosage, the matter of recurrences, other applications to the skin, and the need for a careful search for causal factors.

Another fundamental reason for radiation is to remove hair. Sabouraud, and later Adamson, perfected our present technic for the treatment of ringworm of the scalp. This method is the most satisfactory one for this disease, for by it the infected child can be returned to school in 6 weeks with perfect safety, instead of waiting for from 9 to 18 months if treated by other methods. It is, of course, the most sensitive test of x-ray technic which there is and is only to be done when the standardization of a given apparatus has been fully completed. There have been 225 cases treated at the Massachusetts General Hospital and a few observations may be of interest. Children with small heads, that is with perhaps a 19-inch circumference, very young children, and very light children should be given a somewhat smaller dosage. Colored children will very frequently show areas of increased pigmentation over the scalp with the same dose which will cause no skin change in white children. In the very superficial type of disease often an epilation of 70 to 80 per cent. will be sufficient to cure the disease. The avoidance of treatment with strong anti-parasitic agents, both before and after x-ray treatment, should be insisted upon. One cannot be too accurate in all details pertaining to the actual treatment—the measuring of the scalp, the shielding, the relative positions of head and tube, and the factors used in obtaining the required dosage. The appearance of a generalized eruption or trichophytide, or of pustules are complications which may present themselves after treatment. Cases which recur should not be treated again for at least 6 months after the previous treatment.

In favus the same remarks will apply, but in these cases it is necessary to obtain 95 or 100% epilation in order to cure the disease. This disease is a much more obstinate one and its end-results, scarring and permanent alopecia, justify the slight risk of a slightly larger dosage. Sycosis vulgaris, tinea sycosis, and hairy moles are conditions in which an epilating dose is often necessary. The use of x-ray for cosmetic purposes, that is, for the purpose of removing superfluous hair on the face, is to be condemned. For permanent epilation several epilating doses at different times are necessary, and such doses are apt to produce permanent degenerative changes in the skin. Scarring, atrophy, telangiectases, and pigmentation are now being seen several years after treatment by a very extensively advertised method in newspapers and magazines. Such results are consistent, at least, with overexposure to x-ray, though it is denied that x-ray apparatus is being used on these cases. The procedure is not a safe one.

Fifthly, x-ray may be used to cause destruction of tissue. This applies particularly to tumors of rapidly growing cells, such as can be found in epithelioma, mycosis fungoides nodules, enlarged glands, warts, etc. In pre-epitheliomatous lesions or keratosis the x-ray dose can be

limited to one or one and one-half times the epilation dose and get rid of the lesions, but in true epithelioma a larger dose is necessary. In the more rapidly growing, metastasizing squamous cell type it is often a question whether radiation is to be used or whether excision by surgery or electrocoagulation is the preferable method. Post-operative radiation may be indicated in the case of excision. In the basal cell type curetting the lesion under a local anaesthetic makes it possible to give a smaller dose of x-ray. At the Massachusetts General Hospital clinic some of the more recent cases with nodules have been treated with 7 and 8 times the epilation dose with very good results. It has been surprising to see how comparatively little ulceration has been caused by this dosage. It is true that about half of this dose has been given with a filter and that in many cases the area has been small. One has to be on the watch for the cases which are becoming resistant to x-ray, and if a given lesion is not disappearing as it should, or if it is recurring several times after treatment, it is best that some other form of destruction be used. Lesions which have invaded cartilage are notoriously of this group. In lesions of the lip, radiation therapy is best limited to the very superficial type, but with any infiltration, surgical treatment is probably best.

Lastly, beyond these definite indications is a group in which it is felt that application of the x-ray changes conditions in the skin to such an extent that the organisms grow less well. The mechanism in bacterial and parasitic diseases is less well understood, but it is a fact that cultures are only affected by rather large doses of x-ray, so that it is supposed that some change in the skin occurs to account for the clinical results which occur along with x-ray treatment. Sycosis vulgaris, carbuncles, ringworm of the hands and feet, or epidermophytosis, are examples of conditions which frequently do well with such treatment. In sycosis vulgaris 5 or 6 fractional treatments with mild antiseptic applications are allowable. Some cases will respond better to filtered dosage, and it is necessary in some instances to give an epilation dose to get relief. Considerable scarring and loss of hair often result from the disease so that the risk of possible x-ray atrophy may be justifiable, to say nothing of the long period of disability which may be entailed because of the disfigurement, in a marked case of the disease. In regard to the fungus infections, it must be remembered that while many cases respond beautifully to treatment, the disease tends to be recurrent, so that one must be careful in respect to the number of treatments and the total dosage, as well as the type of antiparasitic treatment which is employed.

X-ray therapy has been used for more than thirty years and its uses and limitations have gradually become better understood. It will gradually assume its rightful place in the therapeutic field, but in the meantime let us be more acutely aware of the fundamental indications for its use and of the limitations imposed by the inadequate standardization of individual outfits, as well as by the possibility of errors of technicians and technic. Let us also weigh in the balance the restrictions in dosage and number of treatments created by the individual variations in the skin, by the type and stage of the disease and by both the previous and concomitant treatment.

TREATMENT OF VARICOSE VEINS BY THE INJECTION METHOD*

BY ELIZA A. MELKON, M.D.†

EARLY attempts to treat varicose veins by the injection method started in Europe; Tavel used the injection method in 1904, Linser in 1912. These early attempts failed either because the sclerosing agents were too caustic, or because the technique was faulty. Infection resulted and occasionally gangrene. Owing to the fear of local infection and embolism, there was general disapproval of this treatment in most countries.

During the War, Sicard, in treating soldiers with luargol, an arsenical product rich in sodium, noticed that the vein in the arm used underwent rapid sclerosis. This process was painless, and was never accompanied by oedema, trophic disturbances, or embolism. Realizing that the sodium was the essential sclerosing agent, he then tried its effect upon varicosities of the leg. He first used sodium carbonate, which is a good sclerosing agent, but very caustic. Later, coöperating with Paraf and Forestier, sodium salicylate was substituted. This is most extensively used by Sicard, Gaugier, and their fellow workers. Other substances that have been used are: biniodide of mercury by Montpellier, quinine and urethane by Genevrier and Dowthwaite, glucose by Noul, sodium citrate by Troisier, sodium chloride by Linser. The same method of treatment has been used by other investigators with satisfactory results; at the Meeker Hospital in Paris it has been employed for several years, and thirty to forty thousand injections given without accident of any kind. Three fatal cases have been reported in the literature, but it is not certain that the fatalities were due to the injection.

Three thousand injections have been adminis-

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†For record and address of author see "This Week's Issue," page 723.

tered in my clinic at the New England Hospital for Women and Children and in my office with very gratifying results. I have never seen any disturbing reactions to treatment.

ETIOLOGY. I have observed that heredity plays an important part in the tendency to develop varices. About eighty per cent. of my patients have a family history of varicose veins.

Infectious diseases, such as typhoid fever, may be followed by varicose veins.

Endocrine dysfunctions have an important influence in certain cases. Many varices developed during puberty, pregnancy and menopause. According to Delatose and Sicard, endocrine dysfunctions, especially pituitary and ovarian insufficiency, are the cause of varicose veins. For this reason they combine pituitary and ovarian treatment with local injections.

PATHOLOGY. Sections of injected veins in dogs, rabbits and men have been examined at varying periods after injection. The most complete summary of the pathology of the obliteration of the vein is given by Regard, although Jentzer, Meisen and Sicard had also noticed the same results. Regard divides it into three stages.

First Stage: The chemical irritant produces prompt swelling of the endothelium, which extends rapidly to the coats of the vein. The result of this is the thickening and hardening of the wall and great reduction of the lumen. Gradually the lumen becomes so small that the blood flow practically ceases. At this point coagulation occurs. The formation of this clot is a "thrombosis," which constitutes the second stage.

Second Stage. This clot is so small, firm and fixed that there appears to be no risk of separation.

Third Stage. In this stage the vein becomes organized. Sicard names this process produced by a chemical irritant "venitis." It is different from phlebitis, which is caused by an infection. Venitis is localized, and causes a very adherent clot. It does not give rise to pain or oedema of the limb, but leaves an atrophied cord. Due to the fact that phlebitis is caused by an infection, there is frequently an extension from the superficial to the deep veins, causing oedema of the limb, the clot often loosens and floats into the blood stream; there is pain, but atrophy does not take place. Phlebitis may give rise to embolism, while venitis shows no tendency to do so.

I believe that in milder cases of obliteration the blood is forced out of the gradually narrowing lumen and that coagulation or thrombosis does not take place at all.

Another reason why the thrombosis in a varicose vein does not cause embolism is due to the circulation in these veins. Trendelenburg demonstrated that in a varicose vein which has been previously emptied by the elevation of the patient's leg the valves no longer close the lumen but allow the blood to flow freely downward in the vein. The Trendelenburg test can be easily demonstrated by seating the patient in a chair, tipping it back, and elevating the leg, then rapidly tipping the chair forward and asking the patient to stand. The varicose veins fill at once, almost with a shock.

Before treatment.

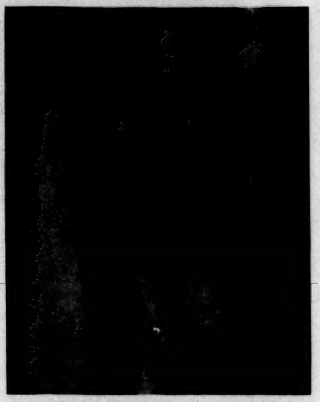
Five weeks after.

FIGURE 1.

Trendelenburg also devised a construction test which demonstrated that when the varicose vessel in the thigh is constricted, the veins below do not fill with blood by gravity. The test is made in the following manner. The patient is tipped back in a chair as in the other test, and the veins in the leg emptied. A piece of gauze bandage is passed about the upper thigh and the ends held between the fingers. A half twist provides enough constriction to compress the superficial veins, then the chair is immediately tipped forward and the patient allowed to stand up. Obviously the down flow in the varicose vein is prevented, and the veins below the constriction remain empty from a half minute to a minute, when they are filled from the arterial side. The result shows, first, that there is no leakage of blood from the deep veins through

the perforators to the surface veins, and, secondly, that the blood in varicose veins flows freely downward to the periphery.

Magnus studied the condition of the circulation in varicose veins. He proved that in the



Before treatment.

Three weeks after the treatment.

FIGURE 2.

recumbent position, the blood in the saphenous varicose veins either flows toward the heart, or, in many cases, is practically stationary. When the patient is in the upright position, or even bends the leg, the blood flows backward toward the periphery. This fact explains why, in people suffering from varices, often complicated by thrombosis, pulmonary embolism is not observed when the patient moves around, or is doing heavy manual labor. Usually embolism is formed only when the body is in the horizontal position during illness. Therefore, it is of advantage, in this method, for the patient not to be kept in bed after injection, but be allowed to resume his ordinary employment.

I have investigated the circulation of the blood in varicose veins under the fluoroscope, and have had x-ray pictures taken immediately after the injection of a twenty per cent. solution of sodium iodide into the vein, the patient being in the recumbent position. The solution flowed slowly upward, then downward, from the point at which it was injected; while in the sitting position, both fluoroscope and x-ray picture showed that the solution flowed downward toward the periphery. These investigations show that the solution injected into the varices of the leg has a tendency to flow in a direction opposite to the ordinary flow of the blood, especially in the sitting and standing positions. It is my opinion that all of these facts have an important bearing in explaining the absence of embolism in the process of the artificial obliteration of varicose veins.

TREATMENT

Indications for Treatment. A physical examination is always necessary before starting the injection treatment. The obliterating treatment is recommended in all forms of varices, whether simple, tortuous, or sacular. The treatment should be used in varices of the leg complicated by ulcer and eczema, and in relapses of varices after saphenectomy.

Contraindications. The injection treatment is contraindicated in old persons with poor health, and in cases of cardio-renal disease. When there is a history of recent phlebitis, the chemical irritant may rekindle the latent infection in the dilated vein. In cases of varicose veins accompanied by extensive oedema of the lower limbs, there is deep circulatory disturbance; obliteration of the superficial varices will not improve the circulation. In pregnancy the varicose veins are due usually to endocrine dysfunctions and they frequently disappear after delivery. If they should still persist some time after delivery, then they should be treated.

Solutions. Various solutions have been used in the different countries. I will speak only of those I am using.

1. Sodium salicylate, 20-40% solution.
2. Metaphen, (1:500) stock solution.
3. Sodium chloride, 18-25% solution.
4. Quinine hydrochloride and urethane.

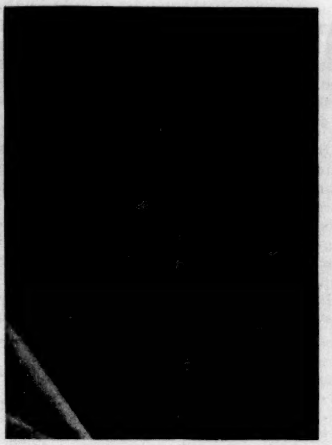
Of these sodium salicylate is being employed in most cases. It gives an especially good result in the large varicose veins with healthy skin. In small varices I sometimes use metaphen. When varicose veins are surrounded by unhealthy skin, quinine and urethane give a better result. This solution also works well in hemor-

rhoids. I use sodium chloride when the patient is in comparatively poor health, or when quick action is desired. Sodium salicylate can be injected on one day and sodium chloride on the next, with safety.

Position of the Patient. Either the standing, the sitting, or the recumbent position may be used. When the patient has large or medium sized varices, I usually have him lie down at the time of injection, when the varices are small and collapsible, I put the patient in the sitting position. The advantage of the recumbent position is obvious, because, the vein not being filled with blood, the concentration is greater, and therefore the result is better. Also in this position the patient is more comfortable, the muscles of the leg are relaxed and the injection is easier.

Choice of Veins. It is better to choose a portion of the vein not too dilated, and avoid injecting into the thin wall sacs if possible. Usually it is better to begin from below and work upward at points two to three inches apart.

Technique of Injection. For this treatment a three or five c.c. glass syringe and a nickel or platinum short hypodermic needle are necessary. Intravaricose injection is more difficult than intravenous injection. Therefore it is necessary to have perfect technique to avoid an escape of the obliterating solution into the surrounding tissue, as it will cause local inflammation and sometimes gangrene. After selecting the vein, the skin is sterilized with alcohol, then with the needle of the glass syringe containing the measured solution, a quick puncture is made into the vein. The blood immediately flows backward into the syringe. This sign, and the absence of any painful sensation on the part of the patient, indicate that the needle is correctly placed. The solution is injected slowly. Signs of oedematous swelling are looked for in the surrounding tissue. After the syringe is emptied, allow ten to twenty seconds to elapse before withdrawing the needle. After withdrawing the needle, a gentle pressure is applied to the spot with a plug of cotton saturated with alcohol. The injection is repeated at some other point if necessary. One essential point to be remembered is that the solution should be introduced directly into the lumen of the vein. If the needle misses the vein, and the solution escapes into the subcutaneous tissue, the patient immediately feels an intense burning or pricking sensation, which is a signal to withdraw the needle promptly and to start again. After the injection, the pressure with cotton on the puncture is continued from one to three minutes, or more, until there is no danger of the liquid and blood oozing out of the puncture. It is not necessary to apply any dressing in most cases; collodion may be applied if desired. In cases where the walls of the varices are very thin, I usually apply a pad of gauze and bandage. As a rule I give these treatments two to three times a week, and inject two or three places at each sitting. I first use a small dose, and gradually increase to the full therapeutic dose.



Before treatment.

Two weeks after.

FIGURE 3.

Immediately after the injection the vein becomes contracted at the site of the puncture. Occasionally an area of local pallor develops. Most patients complain of a cramp-like pain all over the leg, which lasts a minute or so, and is quickly relieved by lying down. Some hours after the injection, the vein becomes tender and slightly swollen. In some cases the tenderness and swelling disappear in two to three days, leaving an obliterated vessel two to four inches long at the site of injection. In other cases the tenderness and swelling persist. At the end of a week the injected vessel feels like a firm cord. Within three to six weeks the tenderness and induration disappear, leaving no sign of the varicosity.

Usually the injection treatment is well tolerated by patients. I have never noticed any serious effects. Occasionally the obliterated cord

remains hard and slightly tender for several months and then disappears. Sometimes a temporary pigmentation occurs at the site of injection. The most disturbing complication, seen now and then, is the development of a cellulitis, localized about the site of injection. This is due either to the escape of the fluid through the puncture opening, or to its diffusion through the thinned wall of the varicose vein. This process subsides in eight to ten days. The patient is able to continue his daily activities.

SUMMARY. Varicose veins can be obliterated safely by the injection of various sclerosing substances. Most of the cases get well in a few weeks, with little or no discomfort. The treatment is ambulatory. The patient has the advantage of being able to continue his occupation during treatment. The injection treatment is bound to take lead over surgery because it is safe, easy to administer, less expensive and the results are satisfactory. The technique must be thoroughly mastered, and good judgment must be used in choosing the vein for treatment. I know of no therapeutic measure that gives greater satisfaction to both patient and physician.

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SEPTIC BRONCHO-PULMONARY INFECTIONS*

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SEPTIC broncho-pulmonary infections comprise a group of conditions that I believe are as common and as varied in their clinical manifestations and therapeutic demands as any group of diseases that afflict mankind today. They include not only the mild inflammatory but also the more severe suppurative conditions of both the upper and lower respiratory tracts, and are found at all ages and in all walks of life. Chronic cough and purulent sputum are the most frequent symptoms of these infections and indicate, in practically all who have them, a septic broncho-pulmonary infection in one form or another. I do not know why it is that more attention is not paid to them in their earliest stages; unfortunately, they are so common that they are looked upon as necessary afflictions of mankind, and it is not until a bronchitis, a bronchiectasis, or a broncho-pneumonia develops that their significance is realized as pathological manifestations of septic broncho-pulmonary disease.

Let me mention a few of the types of individuals who may be candidates for these infections: the child who aspirates a foreign body; the boy of fifteen who has coughed and spat ever since the whooping cough; the girl who has a broncho-pneumonia; the patient who has a purulent nasal discharge, infected tonsils, or sinus disease; the woman who spends four hours in the doctor's office having septic tonsils removed and then goes home in a taxi,—all these are candidates. Osler had a septic broncho-pulmonary infection which extended to the pleura, and as Cushing[1] writes, "The malady can be followed in detail to the end; the aspiration of his pleurisy; an empyema; the identification of the influenza bacillus; an operation; a pulmonary abscess; another operation with its sudden tragic issue." Even Shakespeare recognized the frequency of these symptoms when he said, "Good orators, when they are out they will spit."

It has been clearly demonstrated that in many of these septic broncho-pulmonary infections there is a definite relationship between the upper and lower respiratory tracts. Infected tonsils, abscessed teeth, and suppurative conditions of the antrums and sinuses are in many instances the precursors of severe septic broncho-pulmonary infections, and the lung bases have been called veritable cesspools for upper respiratory infections. It seems only probable, when bronchi are persistently bathed in pus which gravitates down from some infection above the clavicle, that the infection should tend to spread into the lower respiratory tract. I believe that the sequence of events is somewhat as follows: a suppurative condition in the upper respiratory tract may cause infection and weakening of the bronchial wall; desquamation of the ciliated epithelium results with bronchial dilatation and stagnation of the secretions; this automatically leads to the growth of putrefactive bacteria with further weakening of the bronchial wall and extension of the infection. An infection limited at first to the bronchial tree and latent in character frequently becomes reactivated as a result

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of a superimposed infection; there is then an extension to the lung parenchyma and we may have a broncho-pneumonia which, after it has subsided, leaves its legacy of fibrosis and helps to increase the damage to the lungs. The infection may then extend to the pleura, giving rise to a pleuritis, or the pleura may become infected and an empyema subsequently develop.

Let me emphasize the importance of going carefully into the history to detect other foci of infection in the body. Septic emboli or infarcts following abdominal operations or secondary to an ulcerative endocarditis or phlebitis, or conditions below the diaphragm, such as a perinephric abscess, may through direct extension give rise to septic broncho-pulmonary infections. Other factors, such as foreign bodies, malignant disease, enlarged glands at the root of the lung, aneurysms and other mediastinal conditions act mechanically by causing bronchial obstruction and are the prime etiological factors giving rise to secondary septic broncho-pulmonary conditions. It is of the utmost importance to be sure to eliminate the possibility of a foreign body. Sometimes the history may give a clue that some article has been aspirated; on the other hand, a great many cases in which the presence of a foreign body is unsuspected will go on to chronic suppuration. As Dr. Chevalier Jackson[2] points out, it is only natural that a child left alone to play with buttons and such things should automatically put them into its mouth and swallow them, and a great many foreign body abscesses might be prevented if due care were taken to eliminate the causative factors. Churchill and Holmes[3], in a group of cases studied at the Massachusetts General Hospital, emphasize the close relationship between the atelectasis and the suppurative process. They point out that not only may a focus of chronic pulmonary suppuration with a discharge of pus into the bronchial tree produce a secondary atelectasis through mechanical obstruction but suggest that deflation of a portion of the lung may in itself be a factor in the development of a chronic suppurative process. Bramwell[4] has reported a series of cases of aneurysms which compress a bronchus, giving rise to chronic pneumonia and secondary bronchiectasis. One of the largest lung abscesses I have ever seen—a case in which the patient died of a severe hemorrhage—was due to a carcinoma obstructing the bronchus. In this case, the walls of the bronchi were obstructed by the new growth and the abscess was secondary to this mechanical constriction. Pneumonias may give rise to fibrosis in the lung, which may tend to constrict some of the smaller bronchi, with the result that gradually a septic broncho-pulmonary infection ensues.

It has been possible here to indicate only briefly the way in which some of these infections are brought about, but it seems to me of the utmost importance not only to take all various possible factors into consideration, but above all to be sure that the early infections of the upper respiratory tract are not allowed to go unheeded. It seems rather a far cry from a chronic sinus infection to gangrene of the lung or empyema, but as I have said above, I believe there is a very definite train of events by which a sinus infection may give rise to infections of the bronchi; this may extend to the lung parenchyma or to the pleura and induce emypema, abscess, or pyopneumothorax.

The diagnosis in these various septic broncho-pulmonary conditions is extremely difficult in a great many instances, due largely to the fact that they are frequently chronic and that the pathology is constantly changing and masking the etiological factor. There should be complete co-öperation between the surgeon, medical man, radiologist, bronchoscopist, and bacteriologist; but the most important diagnostic requisite is the taking of a careful and painstaking history. The history of cough and purulent sputum often dates back for many years, and follows closely such diseases as broncho-pneumonia, influenza, measles, scarlet fever, whooping cough, and chronic bronchitis. One sees many cases of bronchiectasis in which repeated attacks of broncho-pneumonia have occurred, or in which there has been some form of chronic infection which has been allowed to progress unrecognized and untreated.

The careful examination of the sputum is of the greatest help in the diagnosis. This should not be limited merely to an examination for tubercle bacilli. More attention should be paid to determining the amount of sputum raised in the more severe types of these cases. The careful measuring gives one an excellent idea of the progress of the pathology and is also a guide in determining whether or not drainage is being carried on successfully. The sputum should be studied in gross; the amount, whether large or small; the odor; the character, whether muco-purulent, purulent, or tenacious; the presence or absence of blood—a bloody suptum is a frequent finding in bronchiectasis and malignancy but is often responsible for the patient's being considered tuberculous and sent to a sanatorium. Small bits of tissue, concretions, and casts will freqently give a clue to the diagnosis. Search should be carefully made for elastic fibers. The presence or absence of spirochaetes and fusiform bacilli, the character of the cells, and the predominating bacteria should be noted and carefully studied.

Not infrequently in severe septic broncho-pulmonary infections, such as abscess, bronchiectasis, or empyema, the diagnostic value of the x-ray may be greatly increased by the taking of two series of plates: one before and one after postural drainage has been instituted; dilated bronchi or multiple abscess cavities may be detected more easily if this procedure is carried out. In order to demonstrate the possibility of

a fluid level, the x-rays should be taken with the patient both in an upright position and prone.

Bronchoscopic examination should be done in any case where there is a possibility of a foreign body, or where there is any question of malignant disease or stenosis of the bronchus due to some extra- or intrabronchial factor.

The use of lipiodol in diagnosis is, I believe, of benefit in certain instances to demonstrate bronchial dilatation in bronchiectasis, particularly when the lesion is behind the heart shadow and difficult to interpret by x-ray. It has been very difficult to demonstrate fluid levels with lipiodol in the cases of abscess that I have seen. In several of these, the lipiodol has gravitated to the base of the lung, fusing into a mass, or some of it has been coughed over into the good lung, giving a very confusing picture.

Another aspect of the diagnosis which is not sufficiently stressed is that of atelectasis, which sometimes accompanies these conditions. As a result of bronchial plugging by pus or by some foreign body, a secondary collapse of a lobe may take place, and if this is the lower lobe, as happens most frequently, it gives rise to an x-ray picture and physical signs very difficult to differentiate from encapsulated fluid or empyema.

In many cases the heart is displaced to the side of the lesion, there is a slight narrowing of the ribs on that side, and there may be a slight elevation of the diaphragm. The x-ray gives the appearance of a triangular shadow with the apex toward the hilus and the hypotenuse running along toward the diaphragm, as pointed out by Churchill and Holmes. In these cases, lipiodol is of great help in differentiating collapsed lobes and empyema or encapsulated fluid.

I am sure that we all see cases in which we are not able to make a definite diagnosis; but as the hospital authorities seem to expect some diagnosis, we attach the term "septic broncho-pulmonary infection" or "chronic broncho-pulmonary suppuration." These terms, to my mind, cover a multitude of sins. Once we admit we are sinners, we have taken a long step forward in curing the evil, and I am sure that when it comes to a subject such as this, there are many evils which ought to be cured. We are certainly in need of some better classification, for these terms may mean abscess of the lung, bronchiectasis, or any other suppurative lung lesion; in fact, they may mean practically any condition in which the patient has a chronic cough and raises purulent sputum; and in view of their widely varied therapeutic demands, I feel that the diagnosis of these conditions should be as specific as possible.

In all of these septic broncho-pulmonary conditions the form of treatment must be dependent upon the severity of the disease. When the disease is of mild character, and the patient is able to carry on well with his daily routine of life, milder forms of treatment should be used; but where the conditions are severe, more radical therapy is necessary. The most important feature, however, in the treatment of all these cases is that of rest. It is as important in these chronic septic conditions as it is in tuberculosis. There should be a great deal more rest recommended, it seems to me, following cases of broncho-pneumonia and acute upper respiratory infections, especially when a chronic cough persists. If we insisted that the patients who have mild attacks of bronchitis or grippe, or who are convalescing from pneumonia or influenza, be given greater periods of rest than they now have, a great many of the chronic infections would be avoided in later life. Chronic bronchitis is looked upon by most of us as of too little importance. In cases of bronchiectasis, the symptoms frequently go back many years, the history of chronic bronchitis is frequent, and the patient goes through a progressive stage which is not definitely recognized until it is so advanced that cure is almost impossible. It is very much like tuberculosis in many aspects: insidious in its onset and in its early stages looked upon as "only a bronchitis" and frequently neglected. To tell a patient with a chronic cough, a small amount of purulent sputum and a few basal râles that he has a mild bronchitis makes very little impression upon him; in the patient's mind, bronchitis is not at all an uncommon thing; he may possibly have had it for years and is in the habit of paying little attention to it. On the other hand, while the written diagnosis should be as specific as possible, I am certain that if, in talking with the patient himself, or with his family, we should attach such a name as "septic broncho-pulmonary infection" to all cases of chronic cough and purulent sputum, it would be a step of real therapeutic value, as the patient would take to his bed at once and stay there without further urging. I do not know why it is that so many people with chronic cough and purulent sputum look upon these symptoms as a very trivial matter and as a necessary result of the climate in which they live. If it were more generally recognized that these were symptoms of septic broncho-pulmonary infection, a great deal more attention would be paid to this condition and there would be fewer damaged lungs in the future.

Of equal therapeutic value with rest is the removal of foci of infection in the upper respiratory tract, and especially infections in the sinuses, antrums, tonsils and teeth. The reason why so many of these chronic lung conditions occur is because these foci of infection are, in many instances, left untreated for so long a time. If greater attention were paid to having a clean mouth and to eliminating any focus of infection before tonsillectomy, I believe that fewer lung abscesses would develop. When the larynx is paralyzed by anesthesia during an

operation, and when there is considerable bloody septic material aspirated, it is natural that in certain instances abscess should develop.

Postural drainage is another valuable method of treatment in these cases, particularly when they are chronic and raise large amounts of sputum. The reason why this form of therapy does not meet with as much success as it should is because it is sometimes not carried out intelligently. Patients should be instructed to work with gravity and should be taught to drain themselves two or three times a day either by hanging out over the bed or in the knee-chest position. They should be instructed to elevate the foot of the bed at night, and thus help Nature get rid of the secretion.

In almost all cases, it is inadvisable to attempt to check the cough by medicine when the patient is raising large amounts of sputum. Nature, through cough, attempts to get rid of the secretion, and to check the cough and lock up the secretions is very apt to cause toxemia and extension of the process. Bronchoscopic drainage, in certain cases, is of benefit, and especially in those cases where there has been some form of bronchial stenosis. By bronchoscopic examination the bronchi can be dilated and better drainage instituted. In lung abscess, where the lesion is at the lung root and is not suitable for surgery, persistent bronchoscopic drainage may be of benefit. In cases of lung abscess where the lesion is situated at the root, good results have been reported from the use of pneumothorax. Where the lesion is at the periphery, however, and there is danger of adhesions, this form of treatment is not indicated. I do not feel that it is of much value in bronchiectasis, for although it may aid considerably in alleviating the symptoms, it seldom can effect a permanent cure.

I think that all agree that all forms of medical treatment should be tried before resorting to surgery. Where the conditions are severe, such as in severe bronchiectasis, limited to one lobe, the question of lobectomy or thoracoplasty should be taken into consideration. When abscesses are situated at the periphery and are definitely amenable to surgery, and medical treatment has failed after a trial, these abscesses must be drained. Phrenicotomy is favored by some in cases of bronchiectasis, the theory being that by elevation of the diaphragm the bronchi are changed to a more lateral position, thereby favoring better drainage.

In speaking of these septic broncho-pulmonary infections, the most important feature to be emphasized is that of prevention. If these conditions are recognized in their early stages and treatment is instituted at once, I feel sure that a very large number of them can be prevented. I cannot stress too strongly the urgent need of eliminating infections in the upper respiratory tract and foci of infection in any other part of the body; for all of these chronic septic infections start as an acute condition at some time in life, and if they are permitted to progress gradually until they become chronic in character, they may finally drift into that stage where cure is impossible.

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SOME ASPECTS OF PHYSICAL THERAPY*

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PHYSICAL THERAPY is the cure of, or alleviation or amelioration of the symptoms of disease by material agents other than drugs and surgery; material as against spiritual and mental, thus relegating faith healing, mesmerism and psycho-analysis elsewhere. The psychologic element in physical therapy cannot be gainsaid, but how important a part it plays is difficult to measure. To proclaim that all the benefits derived from physical therapy are psychological, is to fly in the face of evidence that is patent.

These material agents that have been found to have certain therapeutic value both by clinical experience and laboratory research include natural and artificial heat, hydrotherapy, radiant energy, electricity, massage and exercise.

What should be the attitude of the medical profession towards physical therapy? It is here to stay, and can have an honorable place in the practice of medicine, only if practiced and controlled by graduate physicians. There is little doubt but that when intelligently applied, it is the answer of regular medicine to the cults. The abuses that have accompanied physical therapy in the past have been due to the neglect on the part of regular physicians to attempt a serious comprehension of the subject, and of our teaching faculties to correlate it with major subjects of the curriculum.

It is not a cure-all, although some authors of even recent text-books and especially the compilers of the brochures of the manufacturers, continue to write as though radiant energy were the prerequisite of cure for the entire gamut of ills known to man.

The approach when using physical therapy should be as elsewhere, namely, what is the morbid process, its etiology, morbid anatomy,

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and accepted rationale of cure? Certain physical agents may be self-sufficient, in a few limited conditions, whereas in the majority they are only auxiliary. These measures should be prescribed not because the physician happens to have some type of machine at hand, but only if after a careful physical and laboratory examination of the patient has been made, such measures are indicated.

The treatment of disease, whether by medication, surgery or physical agents, is the practice of medicine. If masseurs and the cultists have invaded the domain of the physician, he alone is in great part to blame for the situation. Physical therapy is a component part of medicine, and patients requiring this type of treatment should be referred only to physicians trained in this specialty.

In the hospital, the department of Physical Therapy should be a clearing house and not a dumping ground. Coulter and Holmquest have shown graphically the relationship of physical therapy to other hospital departments. (See Figure 1.) There it will have a three-fold function; (1) the treatment of patients from other clinical departments, (2) clinical research and (3) instruction.

No case should have its origin, I believe, in the department of physical therapy. All cases should be referred from other clinical departments of the hospital and be treated in close co-öperation with these departments. There is much justification in the complaint of the clinical departments of the hospital and of industrial corporations that the treatment of cases by physical agents is often unnecessarily prolonged.

The best check for this will be more clinical research in the department of physical therapy, the clinical research to go hand in hand as far as may be with the laboratory departments of research, biophysics, physiology, pharmacology, chemistry, bacteriology and clinical pathology. Instead of reporting one, two or three cases, benefited by this or that type of physical therapy, groups of cases in hundreds and thousands even, should be studied and reported. It should be a very easy problem to decide for instance in the matter of sprains, whether massage or heat as applied by the incandescent lamp or diathermy is better or whether a combination of both is the best.

A more careful record and follow-up of cases is desirable. The installation of a unit record system; such as is in use at the Boston City Hospital out-patient department is advantageous. Such a record will show the entrances, diagnoses and kinds of treatment given an individual, so that the hospital vagrant may be eliminated.

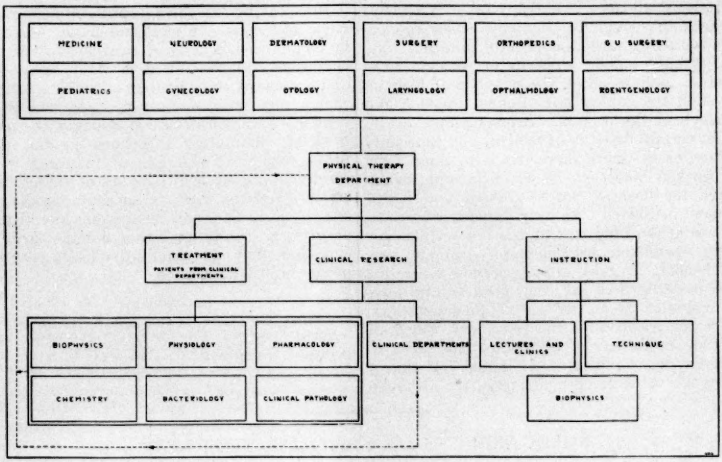

FIGURE 1.

I have stressed clinical research, because primarily as physicians we are clinicians and that is our proper sphere. Laboratory research is by its nature time consuming. Not infrequently it is impossible to transpose the values obtained by the physicist to our biological problem. All the assistance that the biophysicist can give us is eagerly seized upon, but at present many of his conclusions are the result of experiments that need to be rechecked, often a matter of years. We must do something here and now for the sick human.

The majority of Class A medical schools have now provided didactic and clinical courses in physical therapy for the undergraduate and several, notably Northwestern, under Coulter, and Ann Arbor, under Peck, have established

postgraduate courses, extending over a period of eight months. Surely if physical therapy is a part of the practice of medicine, it is deserving of more study than a salesman's assertion that "the snapping of a switch or the pressure of a button can definitely assuage any pathologic change."

The American Medical Association is alive to the situation. Our reputable medical schools and hospitals are endeavoring to meet it. For graduates who are unable to take advantage of the intensive and prolonged courses offered, medical societies are encouraged to invite physicians specializing in physical measures to give sane, scientific courses in physical therapy to their members.

The American Physiotherapy Association, composed of well-trained technicians with ideals, has adopted a definite curriculum for the training of aides and has designated the hospital training courses that are acceptable, so that we may well look forward to better trained nonmedical assistants. The members of this organization further pledge themselves to work only under the direction of a regular physician.

While getting our balance, fortunately, we have a source of inspiration, as well as a stabilizing norm, in the Council on Physical Therapy of the American Medical Association. The work of this body, to say nothing of its existence, I find generally quite unknown. This council was formed in the autumn of 1925, and has duties similar to the council on pharmacy and chemistry, with which you are familiar. It is a group made up of physicists, physiologists, pathologists, and clinicians. The council has been working earnestly the past three years examining a multitude of devices and apparatus, trying to formulate suitable standards for the treatment of disease, by physical measures, standardize a nomenclature and initiate adequate courses in physical therapy.

Physical therapy needs no defence at my hands. The beneficent effect of physical agents long since passed from the nebulous realm of assertion to the daylight of fact.

I will not consider in this place massage, muscle re-ëducation, hydrotherapy or mechanotherapy, but confine myself to certain aspects of light and high frequency currents. These latter have assumed a genuinely deserved importance in physical therapy, but a failure to recognize the limitations and dangers of these agents has given rise to some disappointment.

Precisely how light and high frequency currents produce their effect in living matter is unknown. The electrical theory of matter is fascinating, yet remains only a working hypothesis. Ponzio[1] has stated recently that from actual knowledge, it may be said that highly complex elements concur in the making of matter, in special and very varied conditions of equilibrium, caused by the incessant movement of the atoms and molecules. For organic substances, in particular, and especially for living substances, the stability factors are complex and may be disturbed by many external factors causing a loss of equilibrium such as to lead to death of the living element. This happens chiefly through colloidal precipitations, caused by the disturbances of the ionic equilibrium in the colloid, which show themselves by the alteration of the plasm and viscosity. Among the physical agents most likely to cause such phenomena, heat must be mentioned and Dessauer has in fact held that the cellular reactive process determined by a bundle of rays was due to a special phenomenon of protoplasmic coagulation, in determined heat spots, which occur in the protoplasm mass following phenomena of absorption of incident energy. This hypothesis which is still under discussion is opposed by theoretical and experimental data, which according to Holthusen lead one to consider the biological reactive phenomenon as a result of ionic loss of equilibrium. Probably the reactive phenomenon which takes place in the vital elements is the synthesis of different processes of loss of equilibrium, determined by the bundle of electrons which have decomposed the molecular and atomic structures forming the protoplasmic substance and which show themselves by thermic reactions or by other physical clinical phenomena inherent to disturbed ionic equilibrium. For our purposes it is sufficient to state that light and electricity produce chemical, mechanical and thermal effects.

Every kind of light originates in some material force, a glowing solid, an incandescent liquid, or a gas through which an electric discharge is passing. Light, or radiant energy, as it has come to be called, is that form of energy which is transmitted through space without the support of a sensible medium. All light has the property of vibration or wave motion. The difference between two consecutive points in the disturbance which are in the same phase, is called the wave length. The wave length of a water wave, for example, is the distance from crest to crest or from trough to trough. Similarly, the wave length of a magnetic wave is the distance from crest to crest. The velocity with which it travels through a vacuum or through interplanetary space is approximately 186,300 miles per second. All light, visible or invisible, has the same velocity.

Most light is composed of more than one color. If a light has equal quantities of all colors in it, we call it white light. If it has more of one color than another, we recognize this by seeing a colored light instead of a white light. The unaided eye cannot separate a beam of light into its component colors. One way to do it is to send the light through a wedge-shaped piece of glass or prism. If this is done with a beam of white light, it is separated so that each color is found by itself, in the following order, red, orange, yellow, green, blue and violet. This row

of colors, so arranged, is called the spectrum of visible light. Our eye can detect only these colors. By the use of certain sensitive instruments in place of the human eye, such as a delicate thermometer, a photo-electric cell or a suitable photographic plate, we can detect other kinds of light or radiation that extend at each end beyond the row of visible colors. These particular radiations beyond the violet end of the spectrum are described as ultraviolet, or in the ultraviolet end of the spectrum. If the invisible radiation is at the other end of the spectrum, that is, beyond the red end, it is described as ultra-red or in the infra-red end of the spectrum.

To distinguish these radiations from each other, a standard scale devised by the Swedish physicist Angstrom has been adopted. If we will spread the radiation out into a spectrum or row and set beside it this scale, with successive numbers, each kind of radiation will be found in a definite place in the spectrum and opposite that place will be a number, so that we can use that number to describe any particular kind of radiation, visible or invisible, and use as many numbers as required to give an accurate description of its position or quality. This number, or as it is called an Angstrom unit, (sometimes abbreviated to Au. or A.) also designates the wave length of the light. 1 Au. means one one-hundredth millionth of a cm.

The ultraviolet is represented by numbers smaller than 4000 Au. Visible light is represented by numbers 4000 Au. to 7800 Au. Infra-red is represented by numbers larger than 7800 Au.

By the use of this so-called yardstick of light, we are able to determine the wave-length of all forms of therapeutic radiant energy, from the shortest known wave lengths of radium, through roentgen rays, ultraviolet, visible light, infra-red, to the longest wave lengths of wireless telegraphy and describe them so that "the description will mean the same thing in India as in Indiana."

Spectral studies have done something more than determine wave length and the relative position of the various forms of light. They have shown us the significance of wave length in the biologic and physical action of radiant energy. Before light can be used therapeutically with the best results, the relation between effect and wave length must be well understood.

If we photograph through a spectroscope as the prism and other apparatus is called, we then have a portable record, a spectrogram, of the kinds of radiation in given light source, for instance a carbon arc or uviarc. But it tells us little about the quantity of light of each kind present because the effect of light on the photographic plate has been shown to be a function of wave length as well as of intensity. For radiant energy of 4500 Angstrom units in wave length the efficiency of a photographic plate is about fifty per cent., while for radiant energy of 4000 Angstrom units in wave length, its efficiency is 100 per cent. Therefore, since a photographic plate is selective in its action, a spectogram of a source of radiant energy gives no accurate information as to the relative intensity of the spectral energy emitted by that source.

In considering the various forms of radiant energy employed in physical therapy let us begin at the upper end of the spectrum, where we find the extremely short waves (0.028A) of gamma radiation. To obtain these in any quantity relatively large amounts of radium must be available. The gamma rays are employed chiefly in the treatment of accessible malignant disease.

Radium gives off another kind of ray called beta, identical with the cathode ray of the x-ray tube and less penetrating than the gamma rays which accompany it. Beta radiation is used commonly in superficial dermatological conditions.

Radium when in suitable solution forms a gas called radon, which has the same properties as the salt of the metallic element. It is now the fashion to supply radon to the profession through the mail. The unrestricted sale of radon, pseudo medical mail order fashion, should be discouraged. I have seen recipients of this radon by mail, who did not know the use of the instruments accompanying it, much less the use or dangers of the radon itself.

Next in order of wave length for our purpose come the x-rays (120A to .07A). Not only in diagnosis has this form of light radiation opened up new fields, but in therapy it has been a bulwark. Long, medium and short x-ray wave lengths are used corresponding to energies developed by low, medium and high voltages. Long wave lengths are commonly used in superficial lesions. While probably the most important single curative agent in the armamentarium of the dermatologist, they should never be employed by the amateur.

Wave lengths produced by medium voltage are used in treatment of cancer of the breast, and wave lengths produced by high voltage in the treatment of uterine cancer. The method of utilizing them is constantly changing as we gather biological and physical data. The kind of radiation to be chosen as well as the result now seems to depend on the degree of anaplasia of the tumor tissue.

Radiant energy of the short wave lengths produce profound changes in the blood. Clinical observations taught us that massive doses of high-voltage x-radiation were not justified and that patients do better under divided small doses. The recent experimental work of Mayneord and Piney[2] offers a scientific basis for it. They have shown that massive doses of high-voltage x-ray produces an extreme degree of lymphocytopenia in rabbits, with monocytosis, a phenomenon of impending death, and their

studies have shown that even small doses had best be divided. It was my experience with high-voltage x-ray therapy that led me to employ quartz light and carbon arc radiation empirically, in an attempt to restore the red cells of patients who appeared cachetic or anemic, following massive doses of x-radiation. The recent admirable studies of Miles and Laurens offer a scientific explanation for it.

Approaching visible light in our spectrum, we come across a broad band of radiation known as the ultra-violet (3800-900A). The longer ultra-violet rays are termed inner or near ultra-violets, and include those present in the solar spectrum (3900 to 2900A). The shorter ultra-violets are designated outer or far ultra-violet rays, and comprise those shorter than 2900A. Ultra-violet radiation is the mode of the moment, although it may be out-distanced shortly by the sunlight carbon arc, under the momentum of a national advertising campaign just begun.

All luminous bodies give off some ultra-violet radiation. The ultra-violet generators commonly used in medicine in this country are the so-called uviarc or carbon arc. In the uviarc a quartz mercury burner is employed whose luminous spectrum is rich chiefly in ultra-violet radiation, while the carbon arc spectrum more generally contains all the radiations of the visible light as well as the infra-red. It is to be remembered, however, in discussing the carbon arc, carbons may be cored and impregnated in such a way that one may obtain spectra rich in almost any desired wave-lengths. So that it is apparent that if we are to arrive anywhere in our clinical work with artificial radiation, data should be supplied showing the percentages of various wave lengths by spectral analysis, as well as the total intensity of the lamp utilized, before comparative studies can be made of any permanent value.

Spectrograms are very sophisticated. From them you may determine the percentage distribution. They will tell you nothing about intensity. That is one objection to the present advertising campaign for the sale of carbon arc lamps. You will get a certain intensity if the lamp is operating as it should. An efficient carbon lamp for therapeutic use, operated at about thirty inches, burning a 13 m.m. carbon, drawing 30 amperes of current, will give in a very broad and general way a quality and quantity of energy similar to a perpendicular exposure of noon June sunlight. Few houses or physician's offices are wired to permit the use of 30 amperes of current. If you use a 15 or 10 ampere lamp, the intensity may be decreased as much as twenty-five times which means a proportional increase in exposure time. Little wonder then, that the physicist looks with scepticism on the physician and layman using carbon arc therapy, who is unaware of the electrical energy necessary to operate this particular type of lamp at the intensity required to produce a desired therapeutic effect.

Ultra-violet radiation undoubtedly has a profound effect upon metabolism. Its effect in rickets is probably best known, due to the work of Hess, and a host of others. It is of limited value in the treatment of bone and joint tuberculosis.

Ultra-violet rays alone are not a fair substitute for the rays of the sun in surgical tuberculosis. Most artificial generators produce ultra-violet rays in greater quantity than the sun itself and of shorter wave length. The solar spectrum even at the highest altitude ends abruptly at 2900A. Shorter wave lengths may well be destructive to human cellular structure. It should be stressed that the possession of a generator of ultra-violet light does not by any stretch of the imagination imply that the possessor has either the right or the ability to treat surgical tuberculosis. Proper orthopedic care and surgical judgment are quite as important as good food, fresh air and light treatment.

There is good evidence that ultra-violet radiation has an effect on growth. It does not follow that therefore everyone should submit oneself to artificial sunlight daily. It would seem that most normal individuals get enough sunshine and sky-shine to keep fit, without using artificial burners at home. Indeed if you will examine the report of the helio-therapeutic institutes such as Rollier's, Leonard Hill's, Sir Henry Gauvian and LoGrasso's, you will learn that something more than sunshine and sky-shine is necessary for the cure of their patients. Altitude, moving air, salt water baths, diet and exercise, also play their parts.

Since ordinary glass, of even lantern slide thickness, is impervious to the anti-rachitic rays of sunshine, much effort has been devoted to the production of window glasses that will transmit some of the ray in the region of the ultra-violet. The anti-rachitic effect of sky-shine[3] through these special glasses is almost negligible, except immediately adjacent to the window. In order to obtain much benefit from sunshine through a window glazed with special glass, or indeed an open window, it is necessary to receive the direct rays of the sun.

While the beneficial effect of ultra-violet radiation in rickets is indisputable, it does not mean that everyone is competent to treat a case of rickets, with artificial radiation. Ultra-violet radiation of only one wave length (3020A to 3130A) is of therapeutic potency. Improper dosage may in fact produce low values of calcium and phosphorus in the blood.* Whether cod liver oil, sunshine, artificial light or activated ergosterol is to be used in rachitis is a problem for the competent pediatrician.

The recent studies of Miles and Laurens[4] on the effects of measured amounts of carbon arc radiation on the physical characteristics of the

*These low values may be due to increased blood volume.

blood of normal dogs, seems to explain the clinical improvement noted when ultraviolet radiation is employed following massive doses of X-radiation and blazes a trail for the treatment of the anemias. Intensive clinical research along this line is impelling.

They found that with moderate dosage, there was an initial increase in reds, followed by a decrease; with a strong dosage, an immediate decrease, and with both dosages, a gradual increase in the post-irradiation period to a new level 1,500,000 above normal. These results are taken to indicate a stimulation of the haematopoietic system, the effect being at first obscured by the increased blood volume, an opinion strengthened by the finding of decreased total solids and the Hb percentages, both of which reached normal shortly after the irradiation period.

The effusion of water from the tissues begins almost immediately, and proceeds rapidly so that at the end of half an hour the reds decreased 20 and 25% in certain experiments. After this the increase in plasma volume was more gradual.

With the exception of the whites, the values all approach normal by next morning, and tend to rise above normal and remain so for a short while. In none of the experiments did the whites return to normal remaining at levels twenty to thirty per cent. below at the conclusion of the experiments from one to three weeks after the last irradiation. In each case there was a decided lymphocytosis, following the last exposure.

These results they say confirm the suggestion of Mayerson, 1927, that the low values in blood serums, calcium and phosphorus which he found immediately after irradiation are due to shifts in blood volume rather than to actual decrease in the constitutents.

Similarly, Bannerman, 1927, quoted by Miles and Laurens, found that a single massive irradiation of non-tuberculous orthopedic cases with the quartz mercury vapor lamp was always followed by a decrease in the number of reds, beginning immediately and lasting for several days. In some, these were followed by increases above the normal preirradiation levels. These results, are they believe to be interpreted on the basis of increased plasma volume.

The work of Minot with liver feeding in pernicious anemia is known to you all. Castle[5] working at the Boston City Hospital, has shown that a response similar to that obtained from feeding liver, could be elicited in the majority of patients with pernicious anemia, when fed skeletal muscle previously digested in a normal human stomach.

This suggests the shortage of a specific substance which depends rather on the patient's lack of digestive ability than on a failure to manufacture the substance within his tissues or that a failure of internal manufacture is due to a failure in gastric digestion which must precede it in order perhaps to supply certain elements necessary to its synthesis. (Means)

It is not a flight of the imagination to presume that light radiation of a specific wave length may be found to activate this specific substance in pernicious anemia, just as was found with ergosterol and rickets.

Clinically, at least, patients suffering from secondary anemia seem to convalesce more rapidly when actinotherapy is employed. In view of the disappointment of liver feeding in this condition, a study of the effect of artificial radiation in secondary human anemia should be prosecuted.

Besides the profound effect on the blood, artificial radiation, irrespective of the type of generator, can do great harm and its use in the home, beauty shop and club, where medical supervision is unlikely, should not be countenanced. Scientific literature[6] has already revealed that the rays in some instances may pigmentize or bleach the skin, that they may possess dangerous effects for the eyes, that some people who do not tan are exceedingly poor subjects, that persons with a tendency to pellagra, will develop serious skin symptoms, that persons with a fever tend to do extremely poorly under the use of the ray, that persons with early tuberculous conditions may be greatly harmed, that menstruation in women constitutes a contra-indication to the use of ultra-violet ray, and that there are innumerable records of severe dermatitis, multiple keratoses, macular pigmentation following over-exposure to ultra-violet rays in persons who are unduly sensitive.

Passing from the ultra-violet region of the spectrum through the visible beyond the red, we find a group of radiations of much longer wave length, that are used for a variety of conditions. These infra-red radiations are the heat rays. Long wave infra-red, such as obtained from only moderately warm objects cannot penetrate human tissues. The heat is stopped by the surface of the skin, where it accumulates. The nerve ends that are sensitive to temperature are located near the surface of the skin, and limit the treatment by the discomfort caused by the accumulation of heat at the surface. The underlying tissues are heated by this procedure perhaps to a slight extent.

The situation is different if we have a source of longer infra-red wave lengths, which are more penetrating. This radiation can penetrate some distance beyond the skin surface before it is stopped. It heats the tissues below the surface by sending the energy into the tissues as radiant energy, where it is transformed into heat as it is absorbed.

It is claimed that many of the so-called infra-red generators are little more than bathroom heaters sold at an exorbitant price. Whatever their value, it is due solely to their heat radiation. The spectral range of an infra-red unit can be determined and this should be done by

manufacturers generally. Physical therapists should utilize generators whose spectral range is known. A record of the spectral range, distance and time of the treatment will then at least be a step in the direction of evaluating the heat so produced with that of the time honored hot pack.

We have however, a method of producing deeply localized heat in the body by means of high frequency currents. Nagleschmidt in 1907 gave it the name *diathermy* (heating through). It is sufficient for our purposes to say that the diathermy current is an alternating current of high voltage and low amperage, very rapidly reversed in its polarity.

Whether deeply localized heat is actually produced in the body, whether the current always flows through the shortest path between electrodes of equal size, regardless of the resistance it encounters, and whether heating first occurs in the center of the current path, and later at the two ends, seem no longer a subject of debate.

Arguments for and against have been based on in vitro experiments and have been responsible for many false assumptions. As Binger and Christie[7] say appositely, the living body is not a sausage, nor yet a tube filled with albumen water. It is a heterogeneous system composed of tissues of different specific conductivities and heat capacities. Moreover, these tissues are variously placed, and must therefore lose heat at different rates, according to the efficiency of their circulation, and the opportunity afforded them for heat loss by radiation convexion and conduction.

They[8] concluded that the current takes the path of least electrical resistance rather than the shortest path, the maximal heating occurs at the point of greatest concentration of the lines of current flow. In a homogeneous medium with parallel electrodes, maximal heat production occurs in those portions of the medium adjoining the electrodes, and the heat grading is from without inward. Under these circumstances, maximal heating never occurs at the center. In discussing the localization of heat, not only the electrical resistance and current concentration but also the cooling effect must be considered. That heating during diathermy is greater than that which occurs from the application of local heat to the skin is shown by the rise in general systemic temperature, as measured by a rectal thermometer. In anesthetized animals of three different species, the rectal temperature observed by them was raised from one to two degrees centigrade in as many hours. In anesthetized dogs, frequently a rise in rectal temperature of as much as five to six degrees centigrade was noted. This increased heating effect was due to inability to provide for the heat loss owing to partial paralysis of the heat-regulating mechanism by the anesthetic.

Binger and Christie became interested in the subject of diathermy in its relationship to the treatment of pneumonia. Its use in this disease has been advocated and reported by scattered observers in relatively few cases with no controls, and no correlation with our vast clinical knowledge of the disease. They accurately measured the lung temperature in the living animal during heating by diathermy by means of thermocouples inserted into the lungs, and found that during the passage of diathermy current, of a strength equivalent to those used in therapy, the lung temperature exceeded but slightly the rectal temperature.

They then proceeded to determine whether the cooling of the lung was primarily a circulatory phenomenon or one due to the passage of air in and out of the lungs, and found that prevention of the access of air to one lung while the circulation is intact, results in little if any change in the rate of heating of the lung by the diathermy current, but that occlusion of the main branch of the pulmonary artery in the flow of the current, results in a sudden rise of the temperature in the lung whose artery has been occluded, with subsequent heating. When the pulmonary veins as well as the artery to one lung are ligated, the circulation through the bronchial vessels is also stopped. Diathermy then results in a marked local rise of temperature. They state[9], "It seems apparent that blood cooling is a more effective mechanism in removing heat from the lung than air-cooling." Indeed, it is probable that the condition most needed for the production of local heat in the lungs by the passage of the diathermy current is a partially or completely obstructed circulation of the pulmonary and bronchial vessels. They further show that the temperature of the right heart blood normally exceeds that of the left heart blood by .05 to .2 degrees centigrade, but during the application of a high-frequency current in the thorax, this relationship is reversed, which indicates that the lungs are being heated, but that the blood passing through the pulmonary vessels is removing the heat at approximately the rate of production.

Christie, Ehrich and Binger[10] then considered whether the consolidated lobe could in fact be heated above the temperature of the uninvolved relatively normal lung tissue and found that the consolidated lobe of experimental lobar pneumonia in laboratory animals could be heated by a diathermy current of the strength generally used in therapy to a point approximately one degree centigrade to two degrees centigrade above the temperature of the surrounding normal lobes.

Histological examination of the lung showed the pathological reaction to consist of intra-alveolar exudate composed of polymorphonuclear leukocytes and desquamated alveolar epithelium. In some sections, the exudate was sufficient to cause compression and emptying of

the alveolar capillaries. The local heating they believed depended on this ischemic state of the smaller vessels.

Binger and Christie[11] then attempted to carry over their experimental methods and data, and employed lung puncture with insertion of thermocouples and diathermy in three cases of human lobar pneumonia, without any degree of success.

They account for the discrepancy between the animal experiments and the human by the fact that the animals were under an anesthetic, their heat regulating mechanisms were paralyzed and therefore a far greater rise in systemic temperature occurred in them than in the human patients. Secondly, the human lung is considerably larger than that of the dog, and the chances are correspondingly less of lodging the thermocouple in the ischemic area. Thirdly, for obvious reasons, it was impossible to use as great current concentration in the patient as in the dog. Binger and Christie's work is a model of investigation. Their latest paper does not close the book. It opens up anew, the intelligent clinical study of the treatment of pneumonia by diathermy.

Diathermy is one of the most useful measures available in physical therapy today. The symptomatic relief in the chronic arthritides would justify it if there were nothing else. The disappearance of pain and the greatly increased freedom of motion is a striking feature in many of these cases, despite the fact that the x-ray picture remains unchanged. Numerous cases, physically incapacitated, are returned to gainful occupations. Diathermy here is empirical if you will, but the group of cases benefited is so large that clinically, if not yet by the laboratory, it can be considered a rational method of treatment.

The term surgical diathermy is sometimes used to designate the use of high frequency currents to produce the thermal effects of desiccation, electrocoagulation and cutting. While these forms of diathermy are physical agents and so broadly speaking are a part of physical therapy, they should be employed preferably by those who have had surgical training and experience and should be utilized alone only in localized tumors of a type which do not tend to metastasize. The efficiency of electrothermic methods is increased by the judicious combination of operative surgery, radium and x-ray.

The treatment of hypertrophied tonsils by electrocoagulation it would appear should be best left in the hands of the throat specialist, and this would seem to apply to the use of electrothermy for any condition that comes under a recognized surgical specialty.

It is evident that the subject of physical therapy is much too broad to be considered in one evening. What I have endeavored to do is to show you that in its various aspects it is being seriously studied. We all may be heartened by the thought that our medical schools and hospitals are now providing instruction so that our younger physicians and nurses will come forth better prepared not so much to combat the cultist and the charlatan, but intelligently care for the sick placed in their hands.

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REPORT OF TWO CASES OF RUPTURED SOLID VISCUS*

BY HERBERT Q. HORNE, M.D.†

THE following two case reports are instances of ruptured solid viscera due to trauma received in the commonly supposed safe game of baseball. The players were injured in more or less the same manner, while running bases and within a period of twenty-four hours. The diagnosis in each case was confirmed by operation.

The first of the players, a professional on the Haverhill New England League team, ran into one of the opposing players at second base. It is said that the knee of the second baseman hit him in the right side over the kidney region. He was knocked to the ground and suffered excruciating pain. He was more or less in shock when picked up by a physician who was in the stands. The pain in the right flank was not relieved by a half grain of morphia. He was transferred in an ambulance to the Gale Hospital and referred to us by Dr. Leroy T. Stokes.

Physical examination showed a well developed and fairly well nourished, pale, adult, white male of about 30 years of age. He was conscious and rational, lying flat on his back, somewhat apathetic and twisting with pain in the right flank. *Heart and lungs* negative. *Pulse* 65 and soft. *Abdomen:* The abdomen was distended, more markedly on the right, with acute tenderness on the slightest pressure over the kidney and liver. It was flat to percussion over the entire right side.

The patient was immediately taken to the oper-

*From the Benson Clinic. December 11, 1928.

†For record and address of author see "This Week's Issue," page 723.

ating room where, under light ether anaesthesia, he was operated upon.

Operation: Right rectus incision. Liver and gall bladder intact. There was no inflammatory peritonitis, but considerable serosanguinous fluid welled up from behind the liver. The posterior parietes, injected, and dark reddish in color, were pushed forward almost to the anterior abdominal wall. The basilic vein. The blood pressure at this time was 120/84 and the pulse 120.

Convalescence: On the first few days the patient had a temperature of 101 F., which was considered due to the absorption of the blood clot. After that for 33 days it was normal. On the fifth day the patient was found reading the morning paper. On the twelfth day the sutures were removed. There was a

SPECIMENS FROM THE FIRST CASE

Kidney—showing line of fracture.

Kidney split sagitally, showing the fractures.

SPECIMEN FROM THE SECOND CASE

Spleen, formalin fixed, showing the size of the two fragments.

blunt point of the scissors was pushed into the mass and a considerable amount of blood clot was extracted. The opening was enlarged and the kidney was brought up into view. It was found to be torn almost completely through transversely and in addition there was a small rent in the opposite pole. The pelvis was much enlarged and would probably have held 30-40 cubic centimeters of fluid (old hydronephrosis). The pedicle was clamped, cut, sutured and tied. Gauze was packed into the fossa and brought out through a stab wound in the side. The haematoma extended from above the kidney region and had dissected down in the posterior parietes along the ascending mesocolon to below the appendix region. The appendix was inspected and appeared normal, but the mesoappendix was filled with this haematoma. The wound was then closed in layers with chromic, kangaroo tendon, and silkworm gut. While the wound was being sutured, 600 cc. of citrated blood were injected into the right median little ooze of straw-colored fluid, which later became purulent. No culture was taken. This, however, cleared up in a few days with no temperature reaction. The packing, which was placed through a stab wound in the side, caused a little more trouble and it was not until July 30 (21 days post operative) that the last of the gauze could be removed as it was so firmly adherent. On the eleventh of August (33 days after operation) he was discharged from the hospital with a wound of the abdomen which was clean, granulating, and almost healed. He was seen after that in this clinic until the last of August, when the wound was firmly healed. During this time the patient had been up and around in the sunshine and had gained ten pounds in weight. His phthalein at this time was 55% in two hours, his haemoglobin was 80%, and the number of red cells was 4,600,000.

Pathological report: The kidney is above normal size. The upper 1½ inches are almost completely broken off. On the anterior wall near the rupture,

subcapsular haemorrhage is seen. On the posterior surface of the lower half of the kidney there is a rent longitudinally through from the cortex to the pelvis. The kidney pelvis is definitely enlarged and would hold approximately 50 cc. of fluid. Microscopic examination of the kidney shows tissue practically normal were it not for a profuse haemorrhage throughout. There are several small areas of fibrous scar tissue of previous origin. A few of the tubules are dilated and the epithelium is oedematous.

It was interesting in reviewing the history postoperatively, to discover that the patient had had, for a period of two years, attacks of pain in the right flank, which radiated down the course of the right ureter, and that he had been told that his kidney was "bad". He says that for a day or so before the injury he had had some recurrence of these symptoms. The question comes to mind whether he would have ruptured the kidney so completely had he not had this old hydronephrosis and, at the time of injury, a kidney which was dilated and filled with urine.

Spleen, formalin fixed, showing the size of the fragments.

Wound of the spleen case completely broken open, with a catheter in the descending loop of the colon.

The second of these patients was injured on the following day, while playing baseball for the local gas company. He was injured in the same manner, but instead of suffering acute pain at the time of the injury, he continued the game and played another inning and a half. At this time he said he was not feeling very well and guessed he would not play any more. He watched the remainder of the game and was then taken to the room at the Y. M. C. A. by the players. That night he was seen by Dr. Popoff, who could only find a contusion of the left side, with a question of a fractured rib, which was later confirmed by x-ray. On the following day he vomited twice and had severe pain in the left side. While being x-rayed two days later, he fainted. At this time it was noticed that he was a little bit jaundiced and when seen by Dr. Benson, hospitalization was advised.

Physical Examination: Patient is a well developed and nourished, adult, white male of about 26 years of age, lying quietly in bed. He appears a little pale. The conjunctivae are clear with a subicteric tint. *Heart and lungs* are negative. There is a little tenderness over the eleventh rib suggesting a fracture of the tip. *Abdomen* normal in contour. In the left flank there is an area of relative dullness about four inches in diameter, which does not shift on moving the patient. No mass is felt. Liver border at the edge of the ribs. No other points of tenderness. *Extremities* negative except for a large haematoma over the left hip.

Course of Illness: For three days, while in the hospital in bed, his condition seemed somewhat improved. At six o'clock on the night of the third day he had another attack of pain in the left upper quadrant accompanied by nausea. During this time his pulse became irregular and difficult to feel. The blood pressure was 110/65. His appearance was not good. He was given stimulants followed by some improvement. On the following morning he appeared somewhat better. The haemoglobin was, however, only 50% and the white count was 12,000, 85% of which were polymorphonuclear leucocytes. The

serum was definitely yellow in color. He was immediately transfused with 500 cc. of matched citrated blood, with improvement in his color and condition. On the fifth morning the transfusion was repeated. His haemoglobin was then 75%. The next day his pulse rose to 120 and the temperature went up to 104 F. His condition was very poor.

At this time, following the two transfusions, he was operated upon and a spleen torn completely in two pieces was removed. The abdominal cavity was filled with blood, some of which was fresh and some of which was clotted and old. The pedicle was grasped and the vessels ligated. Unfortunately, at the operation a loop of large bowel was accidentally opened and immediately closed with a two-tier chromic suture.

His convalescence was stormy. On the fourth day the wound broke down, with the establishment of a fecal fistula. Most of the sutures were removed and the wound slowly granulated in. The patient ran a more or less septic temperature from then until the 33rd day, when the temperature became, and stayed, normal. A week later he was about to be rolled out on the porch in his bed, when he complained of pain in his left groin, radiating down the left leg. A few minutes later it was associated with marked dyspnoea and cyanosis. The pulse was steady at 80. He died immediately probably from pulmonary embolism.

ECLAMPSIA—A PRELIMINARY NOTE AS TO THE CAUSE

BY STEPHEN RUSHMORE, M.D.*

THE toxaemias of pregnancy still constitute one of the serious problems for the obstetrician, but it is interesting to note that the proportion of toxic cases seen in the ordinary clinic is not as great as formerly and that in certain groups of cases eclampsia rarely occurs. It is customary to attribute the improvement to better prenatal care, but this covers so many factors that without some guiding clue, an analysis of prenatal care throws no light on the point as to whether the cause of eclampsia has or has not been discovered unconsciously, supposing that one can make an unconscious discovery. Certainly we have not yet consciously discovered the cause of eclampsia. The writer has formulated a somewhat incomplete theory as a means of assisting the search.

For a long time there has been general agreement that eclampsia is a disease of pregnancy. Here agreement stops, unless we add that it is a disease involving some kind of poisoning. It may be added further that it is a disease associated with a living fetus. As we look for a cause we may temporarily disregard those cases in which the fetus is dead or has been born; ultimately the theory must explain them also, but temporarily we may disregard them.

How may the living fetus harm the mother? Three groups of conditions naturally occur to one's mind: (a) The fetus may take from the mother some substance which the mother needs, perhaps producing only a relative imbalance in metabolism. (b) The ordinary metabolic processes of the fetus may produce toxic substances which throw too great a strain on the eliminative system of the mother, a relative imbalance of elimination. (c) The fetus may produce in some way, as yet unknown, some toxin as yet unknown, (perhaps a product of incomplete catabolism) which causes the disease in the mother. This might be regarded as primarily a disease of the fetus, and the disease of the mother would be secondary.

In the absence of any evident disease of the fetus, group c may be temporarily laid aside, to be considered later, if necessary. In the absence of evident disease of elimination on the part of the mother, group b may be temporarily laid aside. In some cases, defective elimination is evident, but it is not a characteristic of the disease, and promoting elimination by diuresis and purging does not always terminate the disease.

Some form of metabolic imbalance is the group in which most students of the subject have expected to find the cause. An enormous amount of work has been done on protein metabolism, but while much information has been acquired, its relevance to the cause of eclampsia is not clear. Defective fat metabolism is a possible cause, but little light has been thrown on the subject from this point of view.

The work of Titus and Dodds on carbohydrate metabolism has shown that this is affected in both pernicious vomiting and eclampsia, a lowering of blood sugar being fairly constant. For those cases in which the blood sugar was high, a relative hypoglycemia has been regarded as present, and occasionally demonstrated. Furthermore, it has been demonstrated that relative hypoglycemia may produce convulsions. Imbalance of mineral salts metabolism has hardly been studied, and the part of accessory foods, as vitamins, is quite unknown. The theory of Titus and Dodds, as to the importance of carbohydrate deficiency, is confirmed by the therapeutic test, giving carbohydrates freely in the diet, and especially by glucose solution intravenously. But no suggestion is made as to why the carbohydrate deficiency occurs with such suddenness, in eclampsia.

It is at this point that there comes in the suggestion made years ago that eclampsia is due to deficiency of calcium, affecting the liver.

The theory may now be stated: eclampsia is due to a calcium deficiency on the part of the mother, owing to the activity of the fetus.

In eclampsia, the deficiency affects primarily the liver. Calcium insufficiency in the liver

*For record and address of author see "This Week's Issue," page 723.

gives increased permeability of liver cells, with interference with their function of carbohydrate metabolism, and, histologically, results in fatty degeneration, or infiltration.

If the interference is severe, necrosis of liver cells results, and the casting into the blood stream of liver protein, which is toxic, and may give symptoms of anaphylactic shock. The liver protein is different from serum albumen and is therefore eliminated by the kidneys, giving the marked albuminuria sometimes found. The severe interference with liver function gives relative hypoglycemia with convulsions and changes secondary to convulsions in brain and liver especially.

The theory explains: the time of occurrence of eclampsia (late in pregnancy when the fetus is most active in taking calcium from the maternal organism); the prevention by modern prenatal care, which includes free use of milk (lime) for the pregnant woman and alkaline treatment (which often includes lime); the albuminuria, which is often marked, suggesting marked kidney disease, but without previous renal affection, and often followed by complete recovery of the kidneys (by all functional and sedimentary tests); the occurrence of convulsions; the beneficial effect of treatment with glucose solutions; the benefit of delivery and the death of the fetus; the occurrence of convulsions for a short time after the death of the fetus and after delivery; the similarity of some cases to anaphylactic shock. The complete recovery of the patient after extensive liver injury is due, as is well known, to the remarkable recuperative power of the liver, proliferation and regeneration beginning very soon after injury occurs.

The theory is to be criticised as not showing why the liver is particularly affected, as a kind of focus of the disease. It may be that the liver is particularly susceptible to calcium starvation. The theory should be checked as to correspondence with facts at many points. Does the liver of eclamptics show calcium deficiency? What is the relation of calcium to sugar metabolism? Is there a correspondence between blood calcium and symptoms in toxaemia of pregnancy? Is there any correlation between dental caries and defective calcium and toxaemia of pregnancy? Apart from pregnancy, does calcium starvation affect the liver or sugar metabolism? In pregnancy does calcium starvation affect the liver specifically? Does pregnancy supply some as yet unknown poison which starts this series of events? Is liver protein toxic? Is the albumen in the urine serum albumen or liver protein?

Some therapeutic tests may be tried. For example, the administration of calcium in toxaemias, by mouth or if the toxaemia is severe, intravenously. In emergency, as in convulsions, when absorption may be slow, perhaps calcium might be mobilized in the patient's body to advantage, by parathyroid hormone injections; (a certain amount of danger is involved in the use of this hormone.)

On many of these points there is information at hand in the literature, but too often the experimental side has not contributed results which are generally accepted as conclusive; (i. e., is the liver protein toxic?)

This theory is presented in the hope that other workers in this field with more adequate facilities for research may be stimulated to attack and solve some of the specific problems which come to the surface. How little there is new in the theory has appeared in the presentation. What novelty there is lies in the arrangement of the data or statements in the literature, with which most of us are familiar.

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HEALTH EDUCATION*

BY THOMAS D. WOOD, M.D.†

IT seems eminently appropriate that health education should receive prominent recognition and discussion in Boston, partly in following up the very signfiicant statement made on this subject by Horace Mann nearly a century ago.

On August 9, 1842, Horace Mann, in Boston, wrote a letter to his friend Dr. Elisha Bartlett, a prominent physician in Lowell, Massachusetts, which contains the following statement "When I last had the pleasure of seeing you in Boston, I mentioned to you a plan which I had for obtaining *authentic* information of the consequences of disregarding the laws of health.

"Were I to write a circular, perhaps I should say generally that ever since I became even partially acquainted with the laws of health and life, I have seen daily and hourly occasion to lament the unnecessary as well as immense loss which is suffered by the individual and by the community, in consequence of the violation of those laws.

"The loss consists of the personal suffering of many, with its attendant expenses; in the impaired ability for usefulness of a still larger number; and in the premature death of a vast majority of mankind.

*An address delivered before the Boston Health League March 4, 1929

†For record and address of author see "This Week's Issue," page 723.

"In looking for a preventive of the evils of impaired health and shortened life, a distinction should be made between those transgressions which arrive from ignorance merely, and those which are committed by yielding merely to the impulses of inordinate appetite. For a prevention of those evils which flow solely from ignorance, mere knowledge would be sufficient; but to prevent those which follow from the improper indulgence of appetite, some change should be effective in the moral condition of the patient. In the latter case, however, knowledge of the benefit naturally resulting from an observance of the Laws of Health and Life would come powerfully in aid of a moral reformation.

"I trust you will be able, then, to arrive at some pretty definite conclusion respecting the *proportion* of sickness, disability and premature death which results solely from ignorance of those principles which have already been discovered, and which every person, if proper attention were paid to early education and habits, would be able to avoid;—that is, in the present stage of the science of physiology, how great the proportion of suffering of disease, diminution of the capacity of usefulness, and abridgment of life comes from sheer ignorance, as contradistinguished from that which comes from causes not known, and from inordinate indulgences. By so doing, I think you will furnish a most powerful argument in favor of making those conditions, on which life and health depend, a subject of study, not only for adults, but especially for the young,—and in order to reach the latter class as universally as possible, for the introduction of physiology into our common schools."

The original autographed letter referred to above is a prized possession of the speaker of this occasion.

Following the date of Horace Mann's appeal sent to his medical friend, and the period represented by this date in education in this country, there has gradually developed a program of instruction in physiology and hygiene in the schools. The most prominent feature in this program of health instruction, up to the time of the World War, was temperance instruction, with the quite extraordinary combination of statements, appeals and books which entered into that significant campaign against the use of alcohol.

The World War brought to this country in startling clearness and dramatic emphasis some understanding of the deficiency in nutrition and vitality of multitudes of American children, and also statistics regarding the physical handicaps and deficiencies of a multitude of the young men of the United States. During this decade, and a little more, since the end of the war, rapid progress has marked the development of understanding and appreciation of the need of health education in our schools, and in the country as a whole.

Health today is definitely, and with frequent repetition, announced by our leaders in general education as the first and most important of the objectives of public education. During this ten year period, emphasis has shifted from the theoretical instruction of pupils in the schools, with reference to physiology and hygiene, to a program of stimulating health practices, and the establishment of health habits. Not only have the officials of the schools given increasing attention to this phase of the educational program, but a multitude of agencies and organizations outside of the schools have utilized a great number and variety of influences to stimulate the schools and school authorities to give increasing attention to the health program. Certain fundamental propositions relating to health education stand out with increasing clearness and prominence.

Health education includes all of the experiences in the school and elsewhere which favorably influence habits, attitudes and knowledge relating to individual, community and racial health. As stated in the Health Education report of the Joint Committee on Health Problems in Education of the National Education Associations and the American Medical Association, "the ideal of health is not mere freedom from obvious deformities and pathological symptoms; it is the realization of the highest physical, mental and spiritual possibilities of the individual. Health Education can be promoted only by emphasizing all aspects of health—physical, mental, social, moral. The teacher of health should look for normal development of the child from all of these points of view."

Workers in this field, with the longest experience in health education, appreciate increasingly the importance of providing full attention to the foundation of health instruction and training from the day the child is born to the time when he enters school. In fact, many prominent students and writers in the field of general education believe that the most important phase of the child's education occurs before he is old enough to enter the school.

While health education involves prominently instruction in the various skills and habits necessary to health and in imparting the knowledge relating to health laws, as rapidly as the growing intelligence of the child will permit this, and of using as skillfully as possible the influences which will encourage the desirable attitudes, and provide the best motives for various phases of health conduct, it is also of the greatest importance that opportunity shall be provided for the child before school age and while in school, to carry out with reasonable ease and accompanying satisfaction the procedures which are involved in the program of health instruction. It is, then, absurd to attempt to teach children to wash their hands before eating the school lunch unless all the pupils involved have reasonably convenient facilities for washing the

hands. Many teachers of health fail to appreciate how indispensable opportunity is for successful teaching, particularly in the health field.

Accumulating results from attempts at health teaching during various stages in school life bring into increasing prominence the conviction that without reasonable understanding, sympathy and co-öperation of the home and the parents, any attempts at health teaching in the schools will be largely futile. Therefore this significant movement in education generally, in the organization of parent-teacher associations, and in the promotion of all factors favorable to the practical co-öperation of the home and school, in relation to the development of the child, gains very prominent emphasis in the field of health education.

Many practical problems in this general field of health, as well as in other phases of education, press for better answers and solutions. In many instances, with the best intentions in the world, classroom teachers and special teachers are trying to help pupils establish desirable health habits by the use of prizes, rewards and credits, some of which are sound in type and principle, and others of which are entirely questionable. A boy in a small New England town, two years ago, early in August, who told an interested public health worker, meeting him for the first time, that the last time he brushed his teeth was on the last day of school, with the implication that the next time when he would naturally expect to brush them would be the first day of school in September, illustrates one of the important problems facing the earnest workers in the health teaching field.

A missionary educator from a tropical island in the Antipodes, is naturally much concerned because, while the girls in a private school on that island seem to learn many desirable health habits while they are pupils, still they apparently forget them in a short time after they complete the work of the school, and adjust themselves again to the customs and lives of the homes from which they came. How then shall the health attitudes and health practices combined with the desirable knowledge relating to health be assured of some permanence in the later lives of those who receive their teaching in school days?

With the development of a wide range of technical tests and measurements in various fields of education, it becomes rapidly apparent that no phase of the work in the schools requires more careful and effective instruction in and use of tests than the field of health education. Various attempts are being made at the present time to meet these needs. The American Child Health Association is engaged upon a research and experimental program involving several years, with the expenditure of over a quarter million dollars in the attempt to construct and to use tests of actual health conditions of children in the schools, and then tests of health knowledge, of health attitudes and of health practices which can, if possible, be so tabulated and correlated as to show through objective tests, rather than individual subjective judgments and opinions, the value of various procedures which are now being made in this field of health education as related to the actual health status and health condition of the pupils who have received this instruction. Tentative results already obtained are very promising with reference to the demonstration of an approved method of ascertaining the relative success or failure of educational efforts in the health field, and of improving these efforts in various ways.

Education in health can not be accomplished by a brief period of instruction in physiology and hygiene, a few minutes a day, one day a week, three days a week, or five days of the week. Such brief periods of instruction in relation to health, if included in the curriculum of the schools, should be utilized as clearing house or discussion periods for situations and topics that arise at other times during the school day, or in other phases of the life experience of pupils.

Some conscious provision should be made by teachers and other school officials who set up the courses of study for health education, so that attention may be given to this every hour of every day, of every week, of every month, and every year of the child's life in school. Then as has been suggested, unless the efforts of the school in health teaching articulate successfully with the life of the pupil in the home and in the community outside of the school, comparatively little progress can be made.

From another angle this problem of health education or "health training", as Professor Burnham of Clark University very logically likes to call it sometime should be closely related to the entire program of school health service, and by this is meant all of the procedures which the modern school provides for learning the status of the child's health; for bringing about the correction of remediable defects; for surrounding the child with a healthful, sanitary environment in the school, and with a program of instruction which shall be wholesome at every possible point; for the immunization of school children against diphtheria, smallpox and other diseases as far as scientific measures have proven these to be practicable; and so for all the phases of health service. While these are primarily not aimed at the inculcation of habits, for conveying to the pupil knowledge regarding health, still all of these phases of health service provide practical experiences which are of great worth if utilized in the health teaching program.

It is apparent to one who gives extended study to this problem of health care and the health education of the boys and girls in our schools, that this program is a very extensive one, with opportunities which occur more fre-

quently, with a co-öperation of more individuals and agencies inevitably involved, and with the need for more comprehensive and complicated system of planning and supervision, than applies perhaps to any other subject or phase in the curriculum.

Provision for the preventive and remedial health care of all the children in a graded school even of moderate size, and concurrent provision of health instruction and training of the children of this school if successful, would require the effort, and the co-öperation of more than twenty individuals and agencies in the school, home and community.

A simple slogan in this field of health education, if carefully considered, has very significant meaning and implication, and this is the slogan: For effective health education, every teacher should be a health teacher, and every teacher should be a health example.

It seems eminently fitting, then, and to a worker of many years in the field of health education, a very encouraging fact and sign, that all of the organizations in the Boston Health League should have united in this meeting for a consideration of health education as a common problem of interest to the constituent members of this League, with their widely diverging interests, and programs.

MEDICAL HISTORY

A RESECTION FOR MAMMARY CARCINOMA IN 1718

BY ROBERT FRANCIS SEYBOLT

THE following notice in the *Boston Gazette*, Nov. 28-Dec. 5, 1720, (also in *Boston News Letter*, Nov. 28-Dec. 5, 1720,) may be of interest to those who are seeking a simple technique in resection for mammary carcinoma:

For the Publick Good of those that have or may have Cancer: These may certify, That my Wife had been labouring under a dreadful Cancer in her left Breast for several Years, and when the cure had been attempted by several Doctors from time to time, without success; and Life was almost dispaired of, by reason of its repeated bleedings, growth and stench; and she seem'd to be in danger of immediate Death: We sent for Dr. Zabdiel Boylston of Boston, who on July 30, 1718, in the Presence of several Ministers and many others assembled on that occasion, cut her whole Breast off, and dressed it in the space of five minutes by the Watch of one then present: and by the Blessing of GOD on his Endeavours, she has long since obtain'd a perfect Cure, and I deferred the Publication of this so long, least it should have broken out again.
Rochester, Octob. 4, 1720 Edward Winslow.

It is evident that Dr. Boylston wasted little time in his operations. He seems to have been acquainted with short-cuts that are unknown to the surgeon of the present day.

Zabdiel Boylston, 1680-1766, is well known to the student of early American medicine as a pioneer in the practice of inoculation for small pox. In recognition of his success, he was made a Fellow of the Royal Society, 1726.

THE NEW HAMPSHIRE MEDICAL SOCIETY

THE JUSTIFICATION OF THE SLIDING SCALE OF FEES FOR THE SAME OPERATION*

BY DAVID W. PARKER, M.D., F.A.C.S.†

THE wording of the subject assigned to me by the committee is not entirely to my liking. It seems to carry the implication that the medical and surgical profession are followers of Robin Hood, and that their charges are based on his tenets of stealing from the rich to give to the poor. I also feel that the subject, instead of being narrowed down to surgical operations, should include a discussion of the fees for medical as well as surgical services.

I wish to state at this time, without reservation, that no group of men, as a class, exemplify the true principle of Rotary—"Service Above Self"—more fully than does the medical profession. When the call of sickness comes the doctor responds regardless of the social or financial position of the patient, and the remuneration is the secondary, rather than the primary, issue. Many times it is an indefinitely deferred issue. Furthermore, there is only one standard of quality for this service, and that is the best that the individual surgeon is capable of performing. His reputation alone demands this standard.

I have been requested to discuss this problem from the surgical standpoint. I will, therefore, confine my remarks largely to this phase. I wish you, however, to keep in mind that the principles involved apply with equal force to the internist.

The prospective surgeon, after his graduation from medical school, which involves a four-year course with usually a preliminary degree from a college, takes a competitive examination for internship in a hospital. If he is successful he spends the next one to three years at this institution rendering service to patients under the direct supervision and control of members of the Medical and Surgical Staff. This service is entirely without pay. After completing his hospital training he usually goes into general practice as it is essential that a surgeon, to be a good surgeon, have a practical basic knowledge of general medicine. He also, if possible, associates himself with a hospital as assistant to an older, experienced surgeon.

From the time he enters practice he renders advice and treatment to all those seeking it. Not a negligible percentage of this service is rendered without remuneration except for the gratitude of the patients and the experience gained by himself. This percentage does not decrease with time, but rather tends to increase as experience, proficiency, and reputation in his chosen specialty is acquired.

The successful performance of an operation does not involve alone the purely mechanical process of cutting into an individual, and removing some part of his or her anatomy, but demands surgical judgment, a knowledge of surgical pathology, and the training to diagnose and handle intelligently any unexpected condition which may be encountered during the operation. Not infrequently a long protracted convalescence during which the patient nearly dies and is saved only by heroic measures could have been prevented at the operating table. A surgeon must be a good technician, but unfortunately all technicians are not surgeons. There is a vast distinction between a good operator and a true surgeon. Operations are only one phase of the practice of surgery. The broader function of the surgeon is the exercise of a sound judgment as to whether a patient will or will not be relieved by operation, of the power to accurately distinguish a surgical emergency before that emergency is imminent, as for example an appendix about to rupture, or to differentiate conditions like a suspected appendix and a beginning pneumonia, and perhaps save the life of the patient by not removing the appendix. It is often of paramount importance to know when *not* to operate.

The Community has reason to expect and a right to demand service of this type from the trained and experienced Physician or Surgeon. Many of us are able to go to the Country Club and score under an 80 once or twice during the season, but at other times we are not particularly proud of our score. In the game of honest scientific surgery it is not sufficient to be able to get away with something. It is necessary to know that we can score below 80 all of the time if the safety, comfort, and future health of the patient is not to be jeopardized. This ability is acquired in the hard school of experience and constant study.

Now what is this worth? Is it a commodity to be bartered like a pound of tea, at a stated fixed price to all comers? It is not. It is a service so vital to the future earning power, health, happiness or even life of the individual that it cannot be measured in dollars and cents. This does not apply alone to the surgeon, but also to the internist who is many times first on the firing line, and through his experience and professional skill recognizes impending disaster and steers his patient into paths of safety. Most certainly his

*Read before the Rotary Club at Manchester, N. H., January 28, 1929.

†For record and address of author see "This Week's Issue," page 723.

remuneration should be proportionate to the service rendered.

The problem should not be the size of the fee to those who are amply able to pay, but the amount of the charge to the individual of limited means whose sense of pride and spirit of self-respect prevent him from accepting charity.

Furthermore, the individual requiring surgical attention for himself or a member of his family finds himself denied the privilege of deciding whether he can afford this service, as he would in the purchase of a commodity. He must accept it as a life-saving measure even though the incumbent expense may entirely wreck his economic balance.

There is, however, another side to this. No one denies to the doctor the right of the opportunity to live, educate his children, and provide for the future to a degree commensurate with his professional skill and social standing in the community. Yet the surgeon is expected to render service to individuals in limited circumstances, as well as to the more affluent, and to help them asume their obligations by reducing the size of his fee to a nominal sum or even to nothing. He does this, and takes his loss cheerfully and without complaint.

Contrary to the popular idea the doctor does not acquire riches easily or in any considerable amount. Very few doctors leave large estates as a result of their professional services alone. Furthermore, if the fees for all the operations performed in a given time by a busy surgeon for a single definite condition were tabulated the average would be found to be surprisingly low. This was done by the late Dr. George Leland of Boston, an eminent aurist. He found that he received an average fee of $8.50 for all of the mastoid operations performed during a period of six months.

It is perfectly fair and proper that the financially fortunate should pay in proportion to their means if the internist and surgeon are to continue to give of their time, skill, and energy in the treatment of the poor and those of limited means.

I grant you that we have in our fold careless men, incompetent men, avaricious men, and unscrupulous men, but the rank and file of the medical profession are honest, conscientious, progressive and skillful and are an honor to their community, state and nation.

OFFICIAL ANNOUNCEMENT OF THE ONE HUNDRED AND THIRTY-EIGHTH ANNUAL MEETING OF THE NEW HAMPSHIRE MEDICAL SOCIETY

The one hundred and thirty-eighth annual meeting of the New Hampshire Medical Society will be held at Manchester May 27, 28, 29, 1929. The House of Delegates will hold its first meeting on Monday evening at 7:30 o'clock at the Hotel Carpenter and subsequent meetings according to the vote of the House and the By-laws. On Tuesday, May 28, the General Sessions will open at 10 o'clock in the morning. The afternoon meeting will be held at 2 P. M. In the evening the banquet in charge of Dr. H. H. Marks of Berlin, Anniversary Chairman, will be held at the Hotel Carpenter.

Wednesday, May 29, the General Sessions will be at 10 A. M. and 2 P. M.

All meetings of the Society and the House of Delegates will be held at the Carpenter Hotel and the Banquet served in the Main Dining Room.

The Scientific and Commercial Exhibits will occupy booths in the lobby of the hotel and a large and varied display is assured.

The complete program in detail will be mailed to all members thirty days before the meeting.

D. E. SULLIVAN, *Secretary-Treasurer.*

MISCELLANY

Dr. John J. Brosnahan, Keene, is the new secretary of Cheshire County Medical Society.

The annual conference of the County Secretaries was held Tuesday, March 19, at the Eagle Hotel, Concord, and was of much interest. Dr. Frederick P. Lord, Hanover, gave an instructive talk on "Subjects for Discussion at Medical Meetings" and Dr. Fred E. Clow, Wolfeboro, presented a paper on "The Duty of County Society to Small Towns" (Medical Service).

These papers with a general discussion and luncheon were much enjoyed.

AN APPEAL FOR MORE SUBSCRIPTIONS TO THE JOURNAL

To Members of the New Hampshire Medical Society:

By arrangement with the NEW ENGLAND JOURNAL OF MEDICINE the proceedings of our Society are being published every month in this JOURNAL.

The Vermont Society is also being served in the same way.

There is a desire on the part of many physicians in New England to extend the circulation of this JOURNAL with the expectation that it will become in fact, as well as in name, the NEW ENGLAND JOURNAL OF MEDICINE.

In order to bring this about, it will be necessary to have as large a number as possible subscribe for all issues of the JOURNAL. Each member of

our society who would like to have all of the fifty-two issues a year may have them for an additional payment of $3.00 above the payment of $1.00 by the State Society. This provision was made with the expectation that a considerable number of the members would take advantage of the offer and is two dollars less than the regular subscription.

The NEW ENGLAND JOURNAL is growing and general endorsement by the New Hampshire doctors will add to its influence.

Inasmuch as the JOURNAL has good reasons to expect our substantial endorsement in the form of subscriptions by a very considerable number of our members and without doubt is sustaining a financial loss under the agreement, it is the earnest desire of your officers that you give careful thought to the many attractive features of the JOURNAL, and by subscribing to it for all of its issues make manifest your spirit of hearty co-öperation in its high resolves to make it in every way worthy of our confidence and support.

D. E. SULLIVAN, *Secretary-Treasurer.*

DR. McGEE IS ELECTED MAYOR OF BERLIN, NEW HAMPSHIRE

Dr. E. R. B. McGee was re-elected Mayor of Berlin, New Hampshire, at the city election held March 12, 1929. Dr. McGee is a member of the State Medical Society and the American Medical Association. His practise embraces otology, laryngology and ophthalmology.

OFFICERS OF COOS COUNTY MEDICAL SOCIETY FOR 1929

President—Henry M. Wiggin, Whitefield.

Vice President—John M. Blodgett, West Stewartstown.

Sec.-Treas.—George R. Cusson, Berlin.

Delegates to State Society—George R. Cusson, Berlin; Tappan C. Pulsifer, Berlin.

Medical Defense Committee—Joseph J. Cobb, Berlin.

THE WAGE SCALE OF NURSES IN N. H.

Reports in the newspapers of a meeting of nurses at Manchester, New Hampshire, March 13, 1929 record the consideration of the matter of fees which nurses may charge. Arguments were presented in favor of a wage scale to be adopted with the suggestion that graduate nurses should agree to charge forty-two dollars per week and that there should be no change in the rate by individual nurses. Miss Margaret Riley of one of the Clinics of the Massachusetts General Hospital was one of the speakers at the meeting.

RECENT DEATHS

Dr. Arthur W. Lavallee of Suncook died suddenly of angina pectoris at his home Friday night, Feb. 8.

Dr. William E. Clark, Charlestown, died recently.

PATIENTS IN STATE HOSPITALS FOR MENTAL DISEASE: 1927

NEW HAMPSHIRE

Preliminary Report

Washington, D. C., March 12, 1929.—The Department of Commerce makes the following announcement for the State of New Hampshire concerning results of the 1927 census of mental patients in state hospitals.

The New Hampshire State Hospital had a total of 307 first admissions during the year 1927, as compared with 375 in 1926, and 306 in 1922.

These first admissions represent patients received during the year, who had not previously been under treatment in any hospital for mental disease. Such newly admitted patients afford the best available measure of the number of new cases of mental disease which are brought under hospital treatment during a given year.

The increase in the number of first admissions to the New Hampshire State Hospital between 1922 and 1926 was relatively greater than the growth in the State's population during the same period, as shown by the fact that the first admissions in 1926 numbered 82.6 per 100,000 of population as compared with 68.5 in 1922. In 1927, however, the first admission rate decreased sharply to 67.5 per 100,000 population.

The extent to which provision has been made for state treatment of mental patients is indicated by the number of patients present in the state hospitals on a given date. In New Hampshire, the number of mental patients under treatment in the state hospital has increased from 876 on January 1, 1910 to 1,575 on January 1, 1928; and the ratio of such patients per 100,000 of general population increased from 203.5 on Jan. 1, 1910 to 346.2 on Jan. 1, 1928.

Of the first admissions in New Hampshire during the year 1927, 155 were males and 152 were females; and of the patients present on Jan. 1, 1928, 733 were males and 822 were females.

These figures are based on reports furnished by the institution, with the co-öperation of the State Board of Charities and Correction. The figures for 1927 and 1928 are preliminary and subject to correction.

Year	First admissions during the year		Patients present January 1	
	NUMBER	Per 100,000 of general population *	NUMBER	Per 100,000 of general population #
1928	...	....	1,575	346.2
1927	307	67.5	1,560	343.6
1926	375	82.6	1,519	335.3
1923	...	....	1,399	312.3
1922	306	68.5	1,417	317.7
1910	...	....	876	203.5

* Based on estimated population July 1.

\# Based on estimated population January 1, 1928, 1927, 1926, 1923, and 1922; and enumerated population April 15, 1910.

—*Department of Commerce, Washington.*

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 15141

EPIGASTRIC PAIN AND CONTINUED FEVER

MEDICAL DEPARTMENT

An Irish-American meat-packing checker forty-nine years old entered May 16 complaining of epigastric pain.

This pain began a year and a half before admission. At first it was a discomfort, "as if he were filled with concrete", and came on after and also before meals. Lately it had become sharp, darting through to the left shoulder, with pain over the heart followed by numbness of the left shoulder. It was now not related to meals except that he had a dull heavy feeling after eating heartily. When he took physic he felt a little better for a day or two. For six months his appetite had been getting very poor. He occasionally had some nausea, but did not vomit. His bowels had been irregular for a year and very constipated for six months. His stools may have been clay colored. He had never been jaundiced. After he passed the barium given him for X-ray examination he noticed a slightly bloody stool. His stools had always been very hard and he had always had to strain. He had rare night sweats. For six weeks he had had vertigo on stooping. Five weeks before admission he was obliged to give up work because he was tired and dyspneic. During the past three weeks he had lost much weight—about twenty pounds in the past two weeks—and had been very dyspneic on exertion.

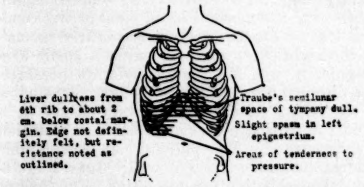
His family history is not significant. He had been married twenty years. His wife had never been pregnant.

His past history is negative except that he formerly was "nervous" and did not sleep well. Recently he had slept better. Formerly he took a great deal of alcohol; for three months he had taken none.

At the Out-Patient Department May 2, two weeks before admission, it was further learned that food relieved his pain and that he had had much gas after meals and at night. He had morning headache. Examination showed slight tenderness in the epigastrium.

X-ray examination of the stomach showed no six-hour residue. The duodenal cap filled out normally. Peristalsis was normal. On the posterior wall of the fundus, particularly about the midportion of the stomach and the cardia, large filling defects were noted.

Clinical examination in the wards showed a pale man with dry skin and evidence of loss of weight. There was a small red area over the tenth vertebra. The heart was long and narrow (long thorax); no abnormalities except a soft systolic murmur at the apex. Pulses, arteries and blood pressure normal at admission. An electrocardiogram showed sino-auricular tachycardia, rate 140, diaphasic T_2. Liver dullness from the sixth rib to about two centimeters below the costal margin. Edge not definitely felt, but resistance was noted in the areas shown in the diagram. There was dullness in Traube's


Liver dullness from 6th rib to about 2 cm. below costal margin. Edge not definitely felt, but resistance noted as outlined.
Traube's semilunar space of tympany dull.
Slight spasm in left epigastrium.
Areas of tenderness to pressure.

semilunar space and slight spasm in the left epigastrium. There was marked impulse in the right inguinal ring on cough. The fingers and toes were clubbed. There was a red external polypoid tab protruding from the anus. No hemorrhoids were noted.

Urine: specific gravity 1.024 to 1.008, cloudy at six of thirteen examinations, alkaline at two, neutral at one, Benedict's test green at one, leukocytes at all of the last seven tests, sediment loaded at two, one red cell to great numbers of red cells at six of the last eight. Blood 11,100 to 28,400 leukocytes, 67 per cent polymorphonuclears, hemoglobin 60 to 70 per cent, reds 4,020,000 to 4,840,000, moderate achromia. Two Hinton tests strongly positive, one Wassermann moderately positive. Fasting contents of stomach: 15 cubic centimeters of thick clear mucoid fluid, no free hydrochloric acid, combined acid 2, guaiac negative. Test meal: thick yellow mucoid fluid, no free hydrochloric acid, combined acid 13, guaiac strongly positive. Stools, guaiac positive at ten of thirteen tests, strongly to very strongly at eight.

X-ray examination showed the diaphragm low on the right, high on the left. The costophrenic angles were clear. There was generalized prominence of the larger lung markings. The aorta was slightly tortuous. The kidney outlines were rather indistinct on both sides. There were two shadows on the right, probably artefacts. The spine showed an anatomical variation in the fifth lumbar vertebra. The plate was unsatisfactory on account of motion. Plates taken with the radiographic catheter in position confirmed the previous findings. After injection, the pelvis of the right kidney was fairly well shown lying un-

usually low, opposite the transverse process of the third (?) lumbar vertebra. The lower pole of this kidney overlay the crest of the ilium. The pelvis was not enlarged or abnormal in shape. The usual cupping of the minor calices was present.

Temperature 97.7° to 102.2°, with elevation to 104.8° May 20 and a terminal rise to 105°. Pulse 75 to 131. Respirations not remarkable.

A surgical consultant advised exploration. One of the surgical chiefs advised against it.

The morning of May 20 there was a rise of temperature to 104.8°. The leukocyte count was 28,000. There was marked costovertebral tenderness on the right. The patient vomited but complained of no pain. That night the abdomen was slightly tense. The next day he vomited again. There were a few small blood clots in the vomitus. May 23 the temperature was nearly normal. In the right costovertebral angle a small firm irregularity was felt, quite tender to pressure. A genito-urinary consultant thought the shadow in the region of the right kidney might be a stone. A visiting physician believed exploration was warranted. The patient had considerable dysuria, but otherwise felt well. June 1 cystoscopy showed both ureters negative. The shadow did not show in the plates taken at cystoscopy. No evidence of renal pathology was found.

June 5 a blood culture showed streptococcus viridans. The organism differed from those isolated from subacute bacterial endocarditis cases both in morphology and cultural character. It was closely allied to organisms found in a few cases of arthritis and some rheumatic aortic heart valves at autopsy. June 9 another blood culture was negative.

June 11 a genito-urinary consultant thought there was a mild cystitis following cystoscopy and thought it was not a factor in the elevation of temperature.

The patient grew increasingly drowsy. He had almost constant hiccup for three days before death. June 18 he died.

Discussion

by Richard C. Cabot, M.D.

Notes on the History

We certainly cannot conclude much from that epigastric pain. It is about the commonest place for pain in the human anatomy.

The first two sentences in the present illness suggest angina pectoris. But the pain may be due to distention of the stomach with air.

Among the many symptoms noticed the dyspnea is perhaps the most outstanding. We wonder if he has a cardiac trouble or a hypertension. We wonder if he has a nephritis which has gradually gone on to produce his anemia. We wonder about his stomach on account of his gastric symptoms. We wonder about his gall bladder, but not very definitely. That is as much as we can do on the basis of that first long paragraph.

I find the dropping off of alcohol and often of tobacco a useful way of finding out when the symptoms began to get severe. When a patient loses his appetite for tobacco it is apt to be the beginning of the clinical course of some hitherto latent disease. It was further back there, three months ago probably, when the disease began to take a strong hold upon him.

"It was further learned that food relieved the pain and that he had had much gas after meals and at night." That means they thought of ulcer.

X-ray examination of the stomach is very important in a case like this. Dr. Holmes, will you be good enough to comment on these plates for us?

Dr. George W. Holmes: I might say first that the gastric examinations at this hospital are made largely with the fluoroscope. We depend very little on the plates in the final interpretation of the X-ray findings. When we find anything interesting by fluoroscope we take plates to demonstrate it. This patient presents a deformity at the fundus of the stomach. From these plates you would not be able to say whether there was anything wrong with the pyloric portion or not. They were taken to demonstrate the deformity in the fundus of the stomach. Deformities in this region are the most difficult to demonstrate of all lesions of the gastrointestinal tract. Lesions of considerable size may be completely missed in this region. Success in demonstrating it depends upon watching the barium as it passes into the stomach and on examining the patient in a great many positions. The observation which is most valuable is the passage of the first swallow into the stomach. Another observation that is valuable is made with the patient on his back on the couch. When the patient breathes deeply the normal stomach changes in shape with each expiratory excursion. In a stomach infiltrated with cancer this change does not take place. In the lower portion of the stomach our diagnosis is much easier because we have peristaltic waves which we can see passing over the stomach. This patient shows a definite deformity, and we have the other signs, so that we have enough evidence to justify us in making a diagnosis of tumor of the stomach. A lesion at the fundus is almost invariably carcinoma. You do not get ulcer in that region. There are very few benign lesions to consider. In fact I cannot recall a single lesion in that region that was not cancer.

A Physician: Could it be due to something outside the stomach?

Dr. Holmes: Yes, but it would not be likely to be in that region. Food in the stomach may do it. A mass of food in that area might look very much like that.

Dr. Cabot: Could a hair ball get up there?

Dr. Holmes: Yes. It presents a very different appearance, though. You get a shadow,

not a clearly outlined mass like this. He either had nothing or cancer of the stomach, and it was probably cancer.

DR. CABOT: Will you say a bit more on the diagnosis of "nothing," Dr. Holmes? If he had nothing how could that shadow be produced?

DR. HOLMES: It could be produced possibly by food in the stomach. This is very improbable, because he was examined in more than one position. Food could be ruled out easily by repeating the examination. If we had suspected food we should have done so. A growth outside the stomach I suppose might do it, but that again would be very rare. As a matter of fact I am as sure as I can be that he had a new growth in the stomach.

A PHYSICIAN: Were all these plates taken in the standing position?

DR. HOLMES: They were taken in different positions. All patients are examined in the upright position under the fluoroscope and the stomach is palpated. Then the patients are rotated to the side. Then they lie face down, then on the back. We look at them in every possible position that we think can be of value. It is a routine procedure to examine in the upright, prone and supine positions. Then the plates are taken in the position that demonstrates the condition best.

DR. CABOT: Working with one or another radiologist one gets used to the different temperaments. Dr. Holmes is a particularly conservative man. In all the years we have been working together never have I heard him commit himself so emphatically. I cannot help but be strongly moved.

A PHYSICIAN: Could carcinoma of the esophagus be ruled out in these pictures?

DR. HOLMES: No. But the growth involves the stomach. It might arise in the esophagus and extend into the stomach; but I think it would be much more likely to be the other way around. Carcinoma of the stomach is more likely to involve the esophagus.

DR. CABOT: "Liver edge not definitely felt, but resistance was noted in the areas shown in the diagram." Of course with a diagnosis which we suspect strongly of being carcinoma of the stomach we are thinking of metastases in the liver.

The dyspnea on exertion is interesting, because we are so apt to associate that with heart and lung disease, although we see many cases here where it is not associated with any disease of the thorax, many cases with high diaphragm or tumor below the diaphragm, raising it, and a good many cases which we cannot explain at all.

NOTES ON THE PHYSICAL EXAMINATION

I do not yet know why his fingers were clubbed.

There is nothing extraordinary about the urine examination. We cannot construct any particular lesion in the kidney out of that.

The blood shows a slight secondary anemia with leukocytosis.

From the X-ray examination that could not be syphilis of the stomach, could it?

DR. HOLMES: I do not believe so.

DR. CABOT: So that what you would expect to see if it were a cancer is present in the stomach examination. Excluding rare meat diet and hemorrhoids that guaiac is suggestive of an oozing carcinoma higher up.

DR. HOLMES: This is the left chest. The diaphragm is distinctly higher on the left. There are a number of things that can give high diaphragm on that side, among them carcinoma of the fundus of the stomach and tumor immediately below the diaphragm. But high diaphragm is very common when there is nothing wrong. A patient who has just eaten will have a high diaphragm on the left side. Anything that interferes with the passage of air into the lung will cause a high diaphragm. There is nothing in this patient's chest, nothing in the lung or bronchus to suggest such a condition. Our interpretation would be that he had something below the diaphragm pushing it up or that he had taken food just before the plate was made.

In the X-ray of the kidney there is a suggestion of a shadow in this area. There was some question at that time as to whether that was a stone in the lower pole of the kidney or whether it was an artefact. By artefacts we mean shadows produced by substances on the skin or due to some error in the dark room. It is hard to say, but I think that is an artefact. There is something about it that suggests it.

Then he had a catheter inserted. The right kidney is considerably lower than the left, I think perhaps a little more than normally, and the shadow which we saw in the previous plates is not visible in this, at least in this light. So that that would rule it out as being a stone and place it definitely in the category of artefact.

DR. CABOT: So we find nothing to trace to the kidneys. In connection with the dysuria remember the leukocytes and blood which we noticed in the urinary sediment. In spite of many complaints which we do not satisfactorily account for, and although there is some blood and pus in the urine, we do not seem to have any sufficient evidence to condemn the kidney.

DR. EDWARD L. YOUNG, JR.: He had, following this, temperature and costovertebral tenderness. I think it is true that pyelitis is often made to take the blame when temperature is not otherwise explained, and I think there is often unwarranted curiosity on the part of all of us to find out the why and wherefore. It seems to me that even if that was a stone we took the chance of stirring up the kidneys by cystoscopy.

MISS PAINTER: On the fourth of June the sediment showed 20 leukocytes and 200 red cells per high power field.

DR. YOUNG: From May 20 to the fourth of June is a very long time for it to take a case of infection in the kidney to develop. In a coccus infection you will get the cocci in the urine, but you may get a grossly clear urine. But even May 20 to June 4 is a long time for that to stay clear. I should question somewhat whether there had been some pyelitis present.

DR. CABOT: I will read to the end and then we will try to get Dr. Young to commit himself on what was found in the kidney.

The chart shows that the temperature was constantly elevated throughout his whole stay here. He had never had a steady normal temperature from the time he entered until he died. It was very much higher in the last few days, but it reached 102° nearly every two hours for two weeks. So we ought to find something else besides cancer of the stomach.

DIFFERENTIAL DIAGNOSIS

I am not going back of the reasoning which Dr. Holmes brought before you in relation to cancer at the fundus of the stomach. He thinks it may possibly involve the esophagus too, but we have had no dysphagia or other swallowing symptoms. There is nothing in the rest of the examination that at all points away from cancer. There is an achylia. There are no gastric symptoms characteristic of gastric cancer, but any gastric symptoms that you can name are consistent with it. I do not think however that cancer is going to account for everything that Dr. Mallory is going to tell us. I think our chief business is to make some guesses as to what terminal infection the patient had. Could he have had a terminal infection in or about that cancer with a local peritonitis? I think not. There is not enough local disturbance in the way of spasm and pain, and there is nothing sudden in the onset of symptoms to warrant that diagnosis.

What are we to make from this streptococcus viridans? We suspect that he has an endocarditis. I do not see how we can rule out a vegetative endocarditis, a malignant endocarditis. He has also a systolic murmur. That is all he needs to have. It is enough to justify suspicion of that diagnosis. But we have no evidence of embolism unless these kidney symptoms may be taken as embolic.

Has he a renal suppuration, a suppurative nephritis, localized or diffuse, with pyelitis? I am not at all prepared to say that he has not. I cannot make any better guess than that he has. I do not see anything else that is suggestive of other localization of inflammatory process except the heart (by the culture) and the kidney by the evidence that Dr. Young has just gone over with you. I think Dr. Mallory will not find a long-standing bacterial endocarditis, though I cannot exclude it. But something in the kidney, in the pelvis of the kidney, or in both seems on the whole more probable.

Dr. Young, would you like to commit yourself?

DR. YOUNG: I should like to say that when I was talking I did not get down to the streptococcus viridans. Of course that would mean a cortical lesion, and it is true that cortical lesions of the kidney may be present and very little may show in the examination of the urine. But that is not the common thing. There is generally persistent and marked tenderness in the costovertebral angle, and that generally increases with the onset of perinephritic infection. I wish they had taken a culture of the urine to tell us whether it was streptococcus there also. I believe, however, that Dr. Mallory will tell us that the kidneys are not infected as a primary cause of this condition, although I cannot say they may not be, any more than you can rule out the heart.

DR. CABOT: You agree that we have to say something more than cancer of the stomach?

DR. YOUNG: I agree to that, and I think it is most likely to be one of those two things.

DR. CABOT: He has not got a brain abscess, not a lung abscess, not a liver abscess or an abscess in or around his liver or in the lesser peritoneal cavity or in the pelvis, and not in his muscles. Is there any other suggestion as to where this lesion may be other than what Dr. Young and I have suggested?

A PHYSICIAN: How do you rule out the liver?

DR. CABOT: I do not rule it out, but I see nothing on which to rule it in. We have no evidence pointing that way. I do not see why he should have liver abscess. We have not had any evidence of the intestinal diseases that ordinarily do lead to it. But I cannot rule it out. It may be silent liver abscess.

A PHYSICIAN: How about gall bladder?

DR. CABOT: I cannot rule it out. We see inflamed gall bladders with very little to show for them.

A PHYSICIAN: Do you see any evidence of prostatic involvement?

DR. CABOT: Prostatic abscess? Should he not have more in the way of pain?

DR. YOUNG: He should have had more marked symptoms. They speak of it, but somebody's finger ought to have felt it. Rectal examination is done as a matter of routine on these cases, and I think that would have been mentioned.

DR. CABOT: Do you agree with the opinion that the viridans never attacks a valve that has not had a previous endocarditis on it?

DR. TRACY B. MALLORY: I think it is by no means impossible. One cannot even exclude the possibility that it is the primary agent in rheumatic fever.

DR. CABOT: And if so, it can attack a fresh valve.

DR. MALLORY: I think so.

A PHYSICIAN: What made him have hiccup?

DR. CABOT: I do not account for it. We all know how common it is in local peritonitis; but I do not think we have enough evidence of local

peritonitis to diagnose it on the grounds of hiccup alone.

A PHYSICIAN: How about gas bacillus infection in the cancer?

DR. MALLORY: We do get infected tumors very often, and infected tumors in the stomach fairly commonly.

DR. CABOT: Sufficiently to account for his temperature?

DR. MALLORY: I should doubt that.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the stomach.
Subacute perforation?
Tertiary lues.
Pulmonary osteoarthropathy.

DR. RICHARD C. CABOT'S DIAGNOSIS

Cancer of the stomach.
Acute endocarditis?
Suppurative nephritis or pyelitis or both.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Carcinoma of the stomach with perforation.

2. *Secondary or terminal lesions.*

Multiple polyps of the stomach.
Metastases to both adrenals.
Abscess adjacent to hilus of spleen.

3. *Historical landmarks.*

Chronic cystitis and pyelitis.
Cystitis cystica.

DR. MALLORY: The primary cause of death in this case was, as diagnosed, a carcinoma of the stomach. The case was distinctly unusual in many other features, however. The stomach contained two small tumors of different character. One, occupying a large part of the greater curvature, was an ordinary benign polyp. The other tumor at its edges had the structure of a benign polyp, at the center the structure of a rapidly growing undifferentiated carcinoma. I think there is no question that cancer developed from one of the two polyps present in the stomach. If he had been caught a year or so previously they might have found only two benign polyps, I think. In the center of the carcinoma a small perforation had occurred and a small abscess was found lying between the fundus of the stomach and the hilus of the spleen. This was sharply localized. There was no generalized peritonitis. The tumor did not extend into the esophagus. It had invaded the left dome of the diaphragm over a wide area nearly ten centimeters in diameter, and large tumor nodules projected from the pleural surface of the diaphragm. I believe they might have shown in the X-ray plate if there had not been a moderate amount of fluid in the left chest.

The kidneys showed an apparently mild degree of pyelitis with very little involvement of the renal parenchyma.

A slight degree of bronchopneumonia was present and probably accounted at least in part for the terminal rise in temperature.

Metastases were found only in the adrenal glands. Both glands were involved and apparently completely destroyed. No trace of adrenal parenchyma could be demonstrated at post mortem examination.

DR. CABOT: It is very interesting, that last point. A man can have normal blood pressure and no evidence of Addison's disease when both adrenals are diseased. It is not the first time I have heard it, but it always surprises me afresh. I suppose it means that the essential part of the organ is still intact.

We had three infections at the end, the abscess and perforation of the cancer in the stomach and spleen, the mild pyelitis and the bronchopneumonia.

A PHYSICIAN: I should like to ask Dr. Mallory if anything was found to account for the clubbed fingers and toes?

DR. MALLORY: No, sir.

DR. CABOT: We have to add this to the list of cases with clubbed fingers and toes without any known cause.

How long do you suppose the perforation was present?

DR. MALLORY: It must have been present for a week, possibly two or three.

DR. CABOT: Enough to account for the temperature and the leukocytosis?

DR. MALLORY: Yes. I might say as well that the tumor in this case was very heavily infected.

CASE 15142

"JUST A COLD"

MEDICAL OUT-PATIENT DEPARTMENT

A very intelligent married Italian housewife forty-three years old was seen in the Out-Patient Department. The case was assigned to a student, who passed it by because of the trivial complaints and the apparent well-being of the patient. Another student, more industrious, obtained the following history.

For the past four or five years she had been having two or three colds in the head and chest every autumn and winter lasting seven to fourteen days. There was very little disability. She had no prolonged after symptoms. The last cold began three weeks before the visit. She now sneezed and had running nose, sore throat and moderately severe cough with a teaspoonful of yellowish odorless sputum, not blood-streaked. She had mildly sharp pains occasionally in the right anterior chest for a few days. For ten years she had had headaches of the migraine type of two to twenty-four hours' duration, recurring monthly.

Her family history was negative except that one sister suffered from a similar type of headache.

A week after marriage she had a rash like measles, disappearing the same day. She had no genital, oral or throat sores. She had been married for fifteen years. Her husband was living and well. She had her one and only pregnancy fourteen years before the visit; this aborted at two months. Five years before the visit she had her blood tested, and was afterwards given three intravenous injections.

Examination. She was normal in development, nutrition, speech, skin and gait. Pupils faintly irregular, equal, reacted sluggishly to light, better to accommodation. Nasal and pharyngeal mucous membrane injected, moist and edematous, that of the mouth normal. Breath sweet. Tonsils atrophic. A firm flattened tumor 2.5 centimeters in diameter, freely movable, not tender, in the region of the right lobe of the thyroid. Marked systolic pulsation at the right lateral cervical base; less on the left. Lungs: a few scattered inspiratory sibilant râles. Heart normal except that the aortic second and pulmonic second sounds were slightly intensified. Blood pressure, right arm 134/80, left arm 130/78. Abdomen: a firm, smooth, movable, non-tender mass the size of a grapefruit in the right lower quadrant extending into the pelvis. Liver, spleen and kidneys normal to palpation and percussion. Vaginal examination showed slight bloody discharge. The mass described was attached to the upper right side of the fundus uteri. Adenexa not outlined. Anal region, extremities and reflexes, including Babinski and Romberg, normal.

Laboratory. Urine and blood, two specimens of each, normal. Wassermann and Hinton strongly positive.

X-ray examination showed no abnormalities of the chest, pelvis or teeth. Both antra and ethmoids were thickened. There was no retained secretion.

Consultations: Anaphylaxis: No evidence of sensitivity. *Nose and Throat:* Chronic rhinitis. Antra dull to transillumination. *Surgical:* Large fibroid of the uterus. *Thyroid:* "In the right lobe is a firm nodule 2.5 centimeters in diameter. There is a hard nodule in the isthmus about the size of a pea. While removal of these nodules is advisable on a preventive basis, it is far more important to treat the lues." *Syphilis:* Latent syphilis.

Discussion

BY MILTON J. QUINN, M.D.

There is nothing new in this case. The excuse for its report is the lesson it teaches in the value of thorough investigation of patients even with simple complaints. It represents a considerable group casually seen in the office, the home, and in out-patient clinics.

In view of the patient's strongly positive Wassermann and Hinton tests her husband was advised to come in for examination. His history and examination were essentially negative except that shortly after marriage he developed a penile abrasion which was two weeks in healing. It was followed by neither rash nor sore throat. He had no treatment. His blood and spinal fluid Wassermann and Hinton tests are now negative.

In view of all the facts our impressions of this patient's condition were: (1) recurrent respiratory infections, (2) chronic sinusitis, (3) migraine, (4) multiple adenomas (?) of the thyroid, (5) fibroma of the uterus, (6) latent syphilis.

Courses of iodobismuth of quinine, neo-arsphenamin and arsphenamin were instituted in the Syphilis Department. The patient is still in the first course of treatment. The respiratory symptoms are much relieved. She is having migraine headaches once weekly, and more severe. There is no change in the other findings.

No attempt is made to relate the different conditions given above to each other or to explain the respiratory improvement or the increase in the severity of the migraine.

The object lesson is to emphasize the importance of thoroughly examining many of the patients whom we all interview so superficially. In so doing the maximum good can be offered to the patient, and the so-called dull and drab cases will surprisingly often present a rosier hue.

Diagnosis

Recurrent respiratory infections.
Chronic sinusitis.
Migraine.
Multiple adenomas (?) of the thyroid.
Fibroma of the uterus.
Latent syphilis.

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THE BILL TO REGISTER CHIROPRACTORS

THE JOURNAL is glad to reprint an editorial published in the *Boston Herald* on Thursday, March 28, 1929.

We earnestly hope that every one of our readers may study this editorial in connection with the bill, Senate 304, which was printed in full in the JOURNAL of last week and was also printed in abstract. We ask this because The Chairman of the Committee on State Administration, Senator Walter Perham of Chelmsford, has challenged the accuracy of the statements made in the *Boston Herald*. The JOURNAL asserts that every statement made in the editorial referred to is exactly in accord with the facts.

It is a pleasure to call attention to such an article in a general newspaper. If the public can be fully informed upon the facts there would be no danger of the Legislature enacting such a measure of special privilege.

THE CHIROPRACTIC BILL

"Do the people of Massachusetts care to have a chiropractor, whose whole formal education was completed in six weeks, treat persons who are afflicted by cancer, diphtheria, tuberculosis, lockjaw, hydrophobia, infantile paralysis, or any other disease?

Do the people further wish to apply one standard to graduates of such an institution as the Harvard Medical School, and another to men who refuse to recognize the existence of germs, who do not accept the established principles of health and disease, and who believe that the only proper method of treatment for any and all disease conditions is manipulation of the spine?

Senate Bill 304 makes all this possible. One section provides that anybody who has lived in Massachusetts at least two years before January 1, 1929, and who received a degree from a legally chartered institution of chiropractic before July 1, 1924, is licensed to practice. Therefore a person who graduated after a six-weeks' course might hang out his shingle. He might be a graduate of the most disreputable of such schools, nevertheless he would be authorized to do everything which our most highly trained physicians may do, except administer drugs internally, perform major operations ("major" is not defined), and practice obstetrics.

And what is a "reputable" chiropractic school? Section 23-E gives a triple definition.

First, a reputable school is one incorporated and authorized to confer degrees. That, of course, means little. Some of the most worthless institutions, whether of law, theology or medicine, are incorporated and empowered to confer degrees. D.D.'s have been purchased for $25. Probably a single D. could be had for less.

Secondly, says section 23-E, the course of study shall be at least "twenty-two hundred 60-minute daylight hours." How much is that? It is fifty weeks or forty-four hours each. That is a pretty short period when you consider that physicians and osteopaths are required to spend four years in study. Why this discrimination? Are the chiropractors a privileged class?

Third, says Section 23-E, personal attendance at the institution is necessary, as well as "successful completion of the course." To that there can be no objection.

There are other defects of the bill. In some sections "legally chartered" institutions are referred to. In others, the chiropractic institutions are required to be "reputable." It is to be hoped that the leading practitioners of Massachusetts will give this bill their close attention, that the medical societies will make their position clear, and that Senators and Representatives will scan every provision carefully. We have no doubt that other objections than those which we have mentioned will be found when the bill is examined closely."

RAW MILK SCORES ANOTHER TRIUMPH

THE town of Plymouth, Massachusetts, at the time of writing has reached the hundred mark in scoring its cases of scarlet fever in the present epidemic. These cases have been traced definitely to raw milk from a dealer in whose family scarlet fever had appeared, but who had continued to produce and distribute raw milk.

Raw milk still has its passionate advocates, but the public, which will have the final word in the matter, is beginning to doubt. A few more epidemics of disease traceable to raw milk, and its doubts will be turned to action. It is reported on reliable authority that the embattled citizenry of Lee, Massachusetts, whose fatal epidemic of septic sore throat is not yet entirely forgotten, is almost solidly behind pasteurization.

The most important factor in the continued marketing of unpasteurized and uncertified milk is the disinclination of the small milk dealers to assume the added expense of pasteurization. For this the small dealer with a herd of a few cows cannot be blamed. Independent pasteurization might be a sufficient overhead expense to put him out of business, yet so long as he neglects pasteurization, just so long is he playing fast and loose with the health of his clientele. The obvious solution is either community pasteurization or the forcing out of business of the small scale dealer.

There is in addition a small and practically stationary demand for raw milk on the part of a small group of individuals, medical and lay, who believe that it is superior to pasteurized milk in the matter either of taste, wholesome quality or both. The first argument need not be considered as it is, obviously, a matter of taste. As regards the second argument most thinking people will agree that an easily compensated vitamin deficiency in pasteurized milk is not to be considered when compared with the real and considerable danger from infection, of which we have an excellent example before as in Plymouth. Raw milk needs only enough rope to hang itself effectively and permanently.

SOME OF OUR HEALTH PROBLEMS

THE conflict of science with disease is often disheartening. The opposition of unappreciative minds is discouraging when doctors have resources which the people will not accept and still more disappointing when active antagonism is interposed in the application of recognized preventive and therapeutic resources. Even though the truths of science are stranger than fiction the human mind is often inclined to reject established facts and endorse error. As a matter of general experience it seems that only those things which are so obvious that there can be no misunderstanding receive unanimous endorsement. We venture to affirm that the Christian Scientist who may be classified as unscientific would concede that a severed artery should be ligated or a soiled wound cleansed, but when we venture into the domain of the complexities of some therapeutic or preventive expedients we find objections and opposition which are due to ignorance and prejudice or both.

We wonder why the advances in the prevention of diphtheria, for example, are distrusted since it has been shown that children can be immunized to the extent that of half a million such children as reported in the *New York Times* not a single patient has contracted the disease or suffered any ill effects. The demonstration of almost complete diphtheria immunization in Auburn, New York, as shown by only one death due to diphtheria in the past four years and in Kansas City where a reduction of 69.1 per cent. of the mortality record of that disease was made in one year fails to convince some of the wonderful benefits conferred on humanity by the application of scientific facts. And yet some people distrust these effective measures. We assume that the objection of certain people who rail against medicine by the use of specious arguments against the contamination of the body by injection of substances employed to create artificial immunity is due to lack of information. Such "having eyes see not and ears but hear not."

The same reasoning applies to vaccination, and mountains of distrust are built on the supposition that the mild infection of vaccinia often predisposes to fatal diseases. Mental perspective and sense of proportion seems to be often lacking in comparing a mild protective infection with the many more serious invasions of streptococci and staphylococci which sooner or later present problems in most people's lives. When we consider the dangers incident to nutrition although the object lessens of unsafe milk have been so vivid as to bring poignant grief to large numbers because of the mortality incident thereto we find opposition by really intelligent people; that is, those with evident sagacity in dealing with business matters. Theoretically we believe that the election of members of the legislature is based on the expectation that a candidate is more than a politician seeking advantage for himself, but we are often doomed to disappointment when our good average citizen has the responsibility thrust upon him of endorsing expert opinion by his official votes.

After the extended array of epidemics of scarlet fever, cases of typhoid fever and thousands of sufferers from streptococci laden milk our representatives in the House and Senate cannot be induced to endorse safe milk. We put able men in charge of our public health affairs and then we too often disregard their recommendations as shown in the recent vote in the legislature which did not sustain the bill which if enacted would require that milk sold in this state should be taken from cows free from tuberculosis and pasteurized to obviate the dangers of contamination. We are pleased to pay homage to Representatives Bell of Somerville, Holden of Attleboro, Bazinet of Webster, Barrow of Melrose, Brigham of Springfield, Sullivan of Boston, and their supporters who worked to safeguard the health and lives of the people.

We fail to understand why educated people can be led to vote against such measures; but they continue to disregard the beliefs of the majority of public health administrators and practicing physicians. The people are clamoring for cures of diseases but seem to think but little of prevention.

Even scientists sometimes grow weary in their efforts for the betterment of the human race, but fortunately the indomitable spirit of progress is at work and advances will continue to be made

by those brave hearts who are unmoved by criticism and obstructive tactics. We continue to hope that sanity will in time prevail.

THE DOCTOR'S ORDERS

President Hoover has learned the first rule of modern health: Take the doctor's orders.—*Boston Herald*

Members of the Legislature take notice—Public Health as per doctor's orders is more to be desired than individual well-being.

An Object Lesson Founded on the Cy-Pres Doctrines and Wooden Legs

In 1861 the will of the late Nathaniel L. Bowditch was found to contain a bequest of five thousand dollars to establish a trust the income of which should be devoted to provide artificial legs for those needing these substitutes.

The entire income has not been needed and has accumulated to a considerable proportion of the original fund.

Upon application to the Probate Court the trustees are given permission to broaden the scope of the bequest in that braces and other devices for injured or diseased legs may be furnished.

It has been assumed that the lessened demand for artificial legs may be credited to medical service. This is undoubtedly true because infection following accidents and due to other causes is to a considerable extent controlled in comparison with the experience of 1861.

It may not be out of place in connection with this demonstration to refer to the debt which humanity owes to medicine. There would be less opposition to the efforts of physicians to bring about the general adoption of recognized therapeutics and preventive resources of the science and art of medicine, if the people were led to appreciate the value of medical resources.

There are frequent exhibitions of the feeling that doctors are selfish parasites on society and that their propositions for the enactment of public health laws constitute an invasion of personal liberty and are unsound in theory.

Arguments and statements recently made in hearings conducted by legislative committees tend to show that this sentiment exists in the minds of some people.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Lane, C. Guy. A.B. M.D. Harvard, 1908. Dermatologist, Massachusetts General Hospital, New England Deaconess Hospital, Massachusetts Charitable Eye and Ear Infirmary. Instructor in Dermatology, Harvard Medical School. His subject is: "The Limitations of X-Ray Treatment of Skin Diseases." Page 687. Address: 416 Marlborough Street, Boston.

Melkon, Eliza A. M.D. Tufts Medical School, 1916. Assistant Physician at New England Hospital for Women and Children. Her subject is: "Treatment of Varicose Veins by the Injection Method." Page 690. Address: 483 Beacon Street, Boston.

Clifford, Randall. A. B. M.D. Harvard, 1917. Assistant in Medicine, Harvard Medical School. Associate Physician, Massachusetts General Hospital. Chief of Pulmonary Clinic, Massachusetts General Hospital. Consulting Physician, Massachusetts Eye and Ear Infirmary. Consultant in Pulmonary Diseases, Boston Lying-In Hospital. Assistant Physician, Channing Home. His subject is: "Septic Broncho-Pulmonary Infections." Page 694. Address: 475 Commonwealth Avenue, Boston.

O'Brien, Frederick W. A.B. M.D. Tufts College Medical School, 1911. Associate Professor of Radiology, Tufts College Medical School. Visiting Roentgenologist to the Boston City Hospital, Boston Sanatorium and Cambridge Municipal Hospital. His subject is: "Some Aspects of Physical Therapy." Page 697. Address: 465 Beacon Street, Boston.

Horne, Herbert Q. B.S. M.D. College of Physicians and Surgeons, Columbia University, 1926. Intern, Surgical, Boston City Hospital, 1926-27. Intern, Boston Lying-In Hospital, 1927. Junior Obstetrician, General Stephen Henry Gale Hospital, Haverhill, 1928. Assistant Surgeon, Benson Clinic, Haverhill, 1928. His subject is: "Report of Two Cases of Ruptured Solid Viscus." Page 704. Address: 26 Summer Street, Haverhill.

Rushmore, Stephen. B.A. M.D. Johns Hopkins, 1902. F.A.C.S. Surgeon, Massachusetts Women's Hospital, Boston. Consulting Gynecologist, Symmes Arlington Hospital. Surgeon Gynecological Department, Boston Dispensary. His subject is: "Eclampsia—A Preliminary Note as to the Cause." Page 707. Address: 520 Commonwealth Avenue, Boston.

Wood, Thomas D. A.M. M.D. Columbia University College of Physicians and Surgeons, 1891. Professor of Health Education, Columbia University. Chairman, Joint Committee on Health Problems in Education of the National Education Association and American Medical Association since 1910. Vice-President, American Child Health Association. His subject is: "Health Education." Page 708. Address: 525 West 120th Street, New York City.

Parker, David W. A.B. M.D. Harvard Medical School, 1903. F.A.C.S. Surgeon, Elliot Hospital, Manchester, N. H., and Balch Hospital, Manchester, N. H. Consulting Surgeon,

Peterborough Hospital, Peterborough, N. H. His subject is: "The Justification of the Sliding Scale of Fees for the Same Operation." Page 712. Address: 967 Elm Street, Manchester, N. H.

THE DOCTOR'S SADDLE BAG

SPRING FEVER

APRIL—or late March, as it sometimes is—when the returning sun brings a few warm days to our northern section of the earth, that annual pleasant lassitude descends upon us which has inadequately been designated as spring fever. An optimistic robin has pecked at the half thawed and muddy lawn in search of a discouraged, if existent worm; the enthusiastic angler has rescued his hip boots from their hibernating hook in the garret and discovered that they leak in the popliteal region; he has taken them, his hip flask, his rod and his bait and sallied forth into the icy torrent where it winds through the alders.

The seedsman is beguiling the perennially ambitious amateur horticulturist with his catalogues, and the latter gentleman, a full six weeks ahead of the season, is preparing to inter in the cold damp ground those nasturtium seeds the offspring of which he annually fails to realize will be neglected and weed choked by August, if indeed, they put in an appearance at all. Spring is here, and in contrast to this your true gardener is studying the fertilizer situation, is planning his planting arrangement and schedule, and if a true devotee of his art is already dabbling in cold frames and hot beds and mapping out his campaign against aphids, cutworms and rust.

The pathogenesis of spring fever is diversified, depending much upon the habitat and individual tastes of its victims, but few indeed are immune to it. Among its inciting causes, variously disarranged as are the vital organs of a kaleidoscope, might be mentioned robins, crocusses, bursting buds, hurdy-gurdies, spring cleaning, brook trout, Easter bonnets, green grass, fresh paint, flat tires, baseball training camps, and medical meetings. To the Eskimo, no doubt, the first sign of spring which awakens a responsive thrill in his heart is his melting roof, touched by the early rays of the returning sun, which leaks through its own smoke hole and splashes upon his slumbering face. The major symptoms of the disease, when it has taken a firm hold upon its victim, are a vague and aimless wanderlust and an insuperable disinclination to follow the straight and narrow path which leads to the daily task.

Spring is indeed a deceptive season; a season of unrealized hopes. We anticipate it each year holding in our mind's eye the image of a perfect spring day and imagine that our Spring will be an uninterrupted succession of such days, peacefully terminating in a cloudless and drowsy summer. We have listened too often to the babbling of poets to profit by repeated and grim experience. We forget the east winds of March, of April, of May and of June; we forget the driving rainstorm and the late snows and remember only those perfect days of which we have one in March, two in April, three in May, and perhaps four in June. Of such stuff are dreams constructed—beds of tulips bathed in sunlight and nodding to warm zephyrs—green lawns and banked evergreens—flamboyant irises and dewy peonies. We are poets at heart and we are disappointed and resentful when the real falls short of the ideal.

What a perfect day it must have been when Alfred Noyes wrote:

"Come down to Kew in lilac time, in lilac time, in lilac time,
Come down to Kew in lilac time, it is not far from London,
And we will wander hand in hand with love, in Summer's wonderland,
Come down to Kew in lilac time, it is not far from London"

I quote from memory but the mistakes are trivial; the spirit of the late spring is there as it is in his other lines:

"There's a barrel organ carolling across a dusky street
In the city, as the sun sinks low—"

Perhaps it was not a perfect day; perhaps he wrote in a drizzle of rain or a London fog; the imagery of the poet overcomes all obstacles, but at least he had known or could imagine perfect days.

Here is the real essence of spring fever. Its sordid reality, to us white knights of the saddle bags, is guaged with a clinical thermometer and illustrated by the statisticians' morbidity curves with their jagged peaks of March, April, and May. The bareheaded Spring-reception-committeeman of Wednesday has a running nose and feet in a mustard bath on Thursday. The robin chaser of Thursday is, like the melancholy cow, coughing his head off on Friday.

Spring pours its gifts into our laps, but in accepting them let us remember our schoolboy Virgil's cautious reminder—*timeo Danaos et dona ferentes*—and cut into our apple before we eat it. The crocusses and daffodils are here, but alongside them bloom the septic sinuses and the double pneumonias, and the babbling of the brook is drowned out by the gargling of the throat.

The Massachusetts Medical Society

COMMITTEE ON PUBLIC HEALTH

FOR several years there has been a tendency on the part of medical groups to reach out to those physicians whose geographic situation pre-

vents ready contact with the schools and hospitals of the larger cities. Examples of this tendency are the extension courses of lectures or clinics which are being carried out over an increasing field. Among the many handicaps to practice in sparsely settled districts is that of lack of pathological facilities. There can be no doubt that much instructive pathologic material develops in the rural sections, nor that its revelation would be helpful to those under whose care it develops. The Committee on Public Health has been considering the feasibility of an attempt on the part of the Medical Society to aid in making necropsies available to those Fellows whose opportunities to see such examinations are limited.

However instructive it may be for such Fellows to read published reports of, or occasionally witness, the routine examinations in our larger hospitals, they themselves must return to practice under entirely different circumstances. They cannot have for the asking the opinions of a battery of specialists, or the varied laboratory reports upon which hospital diagnoses often lean so heavily. Yet their standard of practice would perhaps measure up as well if submitted to the pathologist's inexorable disclosures.

Within a few weeks each Fellow will receive a questionnaire, the answers to which it is hoped will allow the Committee to formulate a report, on the practicability of the suggestion that the Society in some measure underwrite the obtaining of more necropsies in private practice.

Section of Obstetrics and Gynecology

Frederick L. Good, M.D., *Chairman* Louis E. Phaneuf, M.D., *Secretary*
Frederick J. Lynch, M.D., *Clerk*

What Is the Use of X-ray in Pregnancy?

The use of the x-ray in pregnancy in the early history of Roentgenography met with so many unfavorable results because of the damaging effect of the rays on foetal tissues and the lack of success in photographing the structures sought that its employment was justly viewed with apprehension and doubt. Recent improvements in equipment and technique as well as more accurate measurement of dosage have greatly enhanced its value.

The usefulness of the x-ray in pregnancy may be divided into three fields—the first, that of diagnosis as applied to the uterus and its contents; the second, that of study of the bony pelvis; and the third, that of treatment of disease of the pelvic viscera.

I. The field of Diagnosis may be subdivided as follows: diagnosis of (1) pregnancy, (2) multiple pregnancy, (3) abnormal and dead foeti, (4) the age of the foetus, and (5) position and presentation. Let us consider them in this order:

1. *Diagnosis of Pregnancy*

Positive diagnosis of pregnancy by demonstration of the skeletal structures of the foetus on the x-ray film is practically impossible before the latter half of pregnancy. In a series of cases studied by Bartholomew Sale and Calloway the diagnosis was positive in one third of the cases at the fifth month, one half at the sixth month and almost constantly thereafter. Claims of ability to make a positive diagnosis as early as the sixth week have been presented by Peterson who uses the x-ray in association with artificial pneumoperitoneum, an opinion in this method being based upon enlargement of the isthmus of the uterus. By the use of intrauterine injections of lipiodol Heuser declares that he is able to make a diagnosis of pregnancy as early as the second week. In the differential diagnosis of pregnancy and tumors simulating pregnancy the x-ray is of undoubted value especially in the presence of a dead foetus. The technical difficulties involved in x-ray studies in the first half of pregnancy greatly limit its usefulness as a diagnostic agent.

2. *Diagnosis of Multiple Pregnancy*

The x-ray is of distinct value in the diagnosis of multiple pregnancy in doubtful cases,—especially in elderly primiparae where the presence of a single large foetus might be an indication for Caesarean Section or where the relative positions of the babies might render delivery by the vaginal route hazardous. Williams believes that a negative x-ray does not always preclude the possibility of twins.

3. *Diagnosis of Abnormal and Dead Foeti*

Monsters, especially anencephalics and with somewhat less accuracy hydrocephalics may be diagnosed by x-ray and this method should be employed where the choice of a method of delivery demands special consideration.

Information as to whether a foetus is dead may be obtained through the x-ray by study of the foetal head with reference to its size in relation to its normal contents and the condition of the cranial bones. In certain cases of maceration decalcification of the skeleton can be recognized by the x-ray. In the present state of our knowledge however we must consider these studies of doubtful value.

4. *Diagnosis of the Age of the Foetus*

Estimation of the age of the foetus in utero by x-ray study of the centers of ossification has been attempted by a few investigators. Jardin in his study found that the centers of ossification for the upper epiphysis of the tibia and the lower epiphysis of the femur appeared at eight

and one-half and nine months respectively and are always present at term. There is scant comfort in this for the anxious obstetrician. One accepts with resignation the conclusion of Williams that the x-ray cannot be relied upon to determine if a child be premature, mature or postmature.

5. *Diagnosis of Position and Presentation*

In this phase of its use the x-ray is of distinct service especially when decisions as to the management of labor and delivery are involved. The x-ray practically eliminates all guesswork from the diagnosis of breech and other unusual presentations and positions and enables the obstetrician to more accurately estimate his chances of successful delivery.

II. The field of Study of the Bony Pelvis by x-ray may be subdivided as follows: (1) determination of the shape and inclination of the pelvis and (2) determination of the capacity of the pelvic inlet.

1. *Determination of the Shape and Inclination of the Pelvis*

For the first practical use of the x-ray in a study of the bony pelvis we are indebted to Budin of the Paris Maternity whose radiographic study of a Naegele pelvis appeared in 1897 two years after Roentgen's announcement of his discovery of the ray. In the three decades that have passed since Budin's monograph was published the x-ray has found what is probably its greatest obstetrical application in the photography of the abnormally shaped pelvis. By means of it asymmetry, faulty structural relations involving the spine and exostoses due to trauma or disease, may be recognized. It is useful also in determining abnormal tilting of the pelvis. While a certain amount of distortion in the photograph is inescapable the information obtained is generally reliable.

2. The use of the x-ray to estimate the capacity of the pelvic inlet was visualized by obstetricians in the very dawn of Roentgenography and an accurate method of pelvic mensuration by x-ray has been assiduously sought ever since. As early as 1897 Budin and Varnier reporting their experiences with radiography of the pelvis stated that while the ideas it gave as to shape were generally excellent the ideas as to size were erroneous. The errors were recognized as due to distortion caused by the fact that when the photograph was taken the plane of the superior strait was not parallel to the plane of the sensitive film. Attempts to correct this error by means of complicated devices and mathematical formulae were not successful until the painstaking researches of Thoms resulted in 1925 in the development of a technique that permits radiography of the pelvis with the planes of the superior strait and sensitive film parallel and reduces distortion to a negligible minimum. Modifications of the Thoms method reported by Heublein, Roberts and Ogden in 1928 have further simplified the technique. Druner believes that stereoroentgenographic measurement of the pelvis and foetal head with the plane of the superior strait parallel to the sensitive film is the most satisfactory procedure.

While x-ray mensuration of the parturient pelvis is of valuable assistance in diagnosis most obstetricians will agree with Fitzgibbon, Master of the Rotunda, that it is impracticable. Few hospitals are equipped to offer it and the rank and file of Roentgenologists are unfamiliar with or inexpert in the technique.

III. The Treatment of Disease of the Pelvic Viscera.

The use of x-ray therapeutic irradiation in the treatment of pelvic neoplasms complicating pregnancy has been practised in a limited number of cases. In spite of the value of irradiation to the mother the effect of an adequate therapeutic dosage may be highly dangerous to the embryo. Murphy of the University of Pennsylvania found an incidence of 61.3 per cent. of congenitally defective children in a series of 53 cases who had received irradiation in pregnancy. As a result of his observations he concludes that irradiation should not be undertaken unless the pregnancy is to be artifically terminated before viability of the child.

A review of the use of the x-ray in pregnancy would be incomplete without some consideration of the risk involved to mother and child. Careful search of the literature supports the opinion that the danger of the x-ray when properly used for diagnostic purposes is practically nil. Where in the zeal to obtain a good negative a high dosage is given or where another set of exposures is made at too short an interval, risk of damage especially to embryonic structures may be present. That the danger from therapeutic use of the rays is not mythical is supported by the investigation on irradiation conducted by Murphy, referred to elsewhere, in which it is characterized as an extremely dangerous procedure. Experiments on pregnant mice reported by Kasaka in the *Japanese Journal of Obstetrics and Gynecology* in 1927 show that abortion, premature labor, still birth, interference with development, destruction of red blood corpuscles and atrophic changes in the tissues may follow exposure to the Roentgen rays.

In seeking to arrive at a just estimate of the value of the x-ray in pregnancy one finds himself confronted with an array of enthusiastic opinions on the one hand and sceptical or frankly condemnatory views on the other. The last word on the subject has not been spoken for somewhere in the valley between the mountaintops of exaggeration there stands the truth.

Questions of a similar nature to the above will

be discussed in the JOURNAL each week until June. They may be addressed to the Clerk of the Committee, in care of the JOURNAL and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

MASSACHUSETTS LEGISLATIVE NOTES

HEARING ON SENATE BILL 304

ON March 28th the Senate Committee on Ways and Means under the Chairmanship of Hon. Clarence P. Kidder of Cambridge gave a hearing upon the Chiropractic Bill Senate 304. Senator Walter Perham of Chelmsford, Chairman of the Committee on State Administration spoke in favor of the bill. He attacked the editorial on the bill which appeared in the *Boston Herald* of the same day, stating that it showed misapprehension of facts, Senator Daniel J. Coakley of Chicopee and Representative M. Sylvia Donaldson of Brockton recorded themselves in favor of the bill.

Dr. John M. Birnie of Springfield appeared in opposition, pointing out that it was unnecessary to grant special privileges to any group. Chiropractic has been ruled the practice of medicine by the Supreme Court. Chiropractors can if properly educated now qualify and be registered. Some have done so.

Dr. Seth M. Fitchet, a graduate of the Harvard Medical School, a Fellow of the American College of Surgeons, a Surgeon of the Staff of the Massachusetts General and Boston Children's Hospital related how in 1919 before he had graduated in Medicine he became sufficiently interested to investigate what Chiropractic amounted to. The course which he took, consisted in reading sixteen paper covered pamphlets each of about thirty pages which covered the entire field of instruction. Sixteen hours of reading enabled him to pass the examination and for this he received the degree from a legally chartered chiropractic school in Chicago which certified to his knowledge and ability to practice.

Dr. John W. Bartol appeared in opposition as a representative of the Boston Health League. Representatives of the Tuberculosis Associations, of the Society for the Control of Cancer, of the Medico-Legal Association and others were present and were recorded in writing but were not heard.

Fortunately hearings are usually conducted with courtesy and at least with the outward appearance of a desire to learn the views of those who would be heard. In this hearing the impression was given to remonstrants that the case was settled and that their remarks were a very unwelcome interference with the affairs of the Senate.

MISCELLANY

TUBERCULOSIS ABSTRACTS

"Early Discovery—Early Recovery; Let Your Doctor Decide" is the slogan of an educational campaign being actively promoted among the public during April, 1929, by tuberculosis and health associations throughout the country. Emphasis is being placed on the need of discovering tuberculosis in children before it has become manifest pulmonary tuberculosis. While latent tuberculosis in children is not, per se, an immediately serious condition, its discovery is of extreme importance for it enables the physician to institute those measures which may prevent the development of manifest disease later in life. This is prevention.

LATENT TUBERCULOSIS IN CHILDREN

Latent tuberculosis is tuberculosis unaccompanied by significant symptoms or by physical signs. Lesions temporarily latent in this sense invariably precede manifest disease.

The intracutaneous tuberculin test is especially valuable, for by this means sensitiveness to tuberculin can be measured so accurately that two successive tests can be compared. Studies made at the Henry Phipps Institute upon children of families in contact with open tuberculosis and observed over a period of four years showed that the tuberculin reaction would often aid in determining whether a lesion recognizable by x-ray was potentially progressive or already healed. An active tuberculin reaction in a child with a tuberculous lesion recognizable by x-ray examination is presumptive evidence that the lesion has not healed.

There is no essential distinction between latent infection shown by an isolated pulmonary nodule, and that accompanied by obvious involvement of the tracheo-bronchial lymph glands, for dissections of lungs show that a pulmonary focus is almost invariably found in association with a lesion of the tracheo-bronchial lymph glands. In most instances lesions of these glands are seen in the x-ray picture because there is some deposition of calcium, but massive lesions are sometimes recognizable, even in the absence of calcification. In young children there may be, in association with lesions of the lymph glands, wide areas of soft infiltration evident in the peripheral lung field.

Latent tuberculosis of the apex is of greater importance from the standpoint of prognosis than is disease of the tracheo-bronchial lymph glands. It is not infrequently seen in children of about 13 years of age, often in those who are examined as contacts. The lesions are usually indicated by "soft" mottling in the second and third interspaces, occasionally as low as the fourth interspace. The character of these lesions as revealed by x-ray examination differed in no way from lesions found in another group of children where the obvious infiltration was accompanied by râles at one or both apices. The writer, by the way, does not accept the view that all tuberculosis, including the phthisis of adult life, has its origin in early infancy, although he believes that a good deal of the pulmonary tuberculosis of early adult life has its origin during adolescence.

Severe latent lesions are found most often in families in which some member is suffering from open tuberculosis, their frequency increasing with the duration of exposure. X-ray examination of young

children in families exposed to tuberculosis will reveal the severer form of latent tuberculosis of the tracheo-bronchial lymph glands at a time when it is still unhealed; while routine examination of adolescent children exposed to open tuberculosis may also result in the discovery of latent apical lesions.

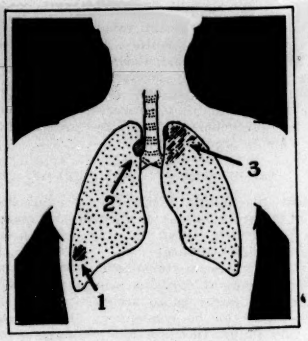


Diagram of lungs, showing how tuberculosis sometimes develops. 1. The first tubercle; 2. Lung gland which has been attacked by tubercle bacilli; 3. Disease of lung substance, which may spread to other parts of the lung.
(Illustration from booklet, "Do Children Have Tuberculosis?" designed to interest parents in latent tuberculosis.)

Lesions of the apex may remain latent for a long period before they are revealed by haemorrhage or other symptoms, and what is regarded as incipient tuberculosis of early adult life is often represented by a fibroid lesion which has had its origin during adolescence, and has remained latent for a considerable period of years. The writer insists that no clear insight into the contagion of tuberculosis can be obtained unless latent disease is brought within the field of vision. *E. L. Opie, Amer. Rev. Tub.*, 1927, 16, 468.

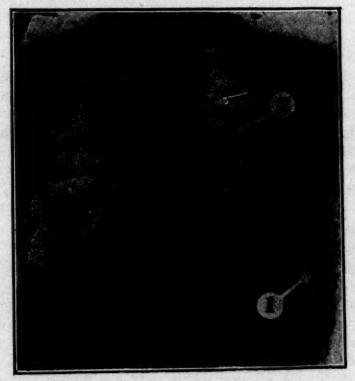
THE DIAGNOSIS OF TRACHEO-BRONCHIAL TUBERCULOSIS

For some seven years the writer has studied the question of radiography of the lungs, to determine what abnormal changes could be conclusively recognized. The subject was approached in two main directions, one to discover what elements of the lung structure might be differentiated by x-ray examination under the simplest conditions, and the other to provide against the effect of cardio-vascular movement in disturbing lung detail.

The first of these questions was studied by radiographing the excised lung, and then comparing the specimen, area by area, with the radiogram. Some 400 pairs of lungs were thus examined, about 150 of which were maintained inflated during exposure. A study of this post-mortem material has convinced the author that calcium infiltration is the sole distinctive radiographic indication of the site of a lymph gland situated within the limits of the mediastinum. Calcium-free glands, however enlarged, fail to cause perceptible intensification of the mediastinal shadow. Intrapulmonary glands must contain calcium to be recorded radiographically. When they are large, that part of their calcium-free margins which projects beyond the arterial main stem will be recorded by contrast with the pulmonary parenchyma. Re-absorption of calcified caseous necrosis does not appear to occur. Shadows simulating calcification are thrown by vessels axially radiated.

Experience with physical signs in the diagnosis of tracheo-bronchial disease has been disappointing. Prolongation of the whispered voice downwards was common to the third, and sometimes to the fifth, dorsal spine, but the writer was unable to account for it on the basis suggested by d'Espine. Percussion was almost equally unsatisfactory, since there was no constant relation between apparent changes of percussion note and a demonstrable lesion. "It is not easy to understand how lesions other than the massive caseation of fatal infantile tuberculosis, while alone, apart from the malignant tumors, protrudes materially beyond the spinal margin, could supply an anatomic basis for changes in percussion. . . . Nor is there commonly a well-defined basis for those changes in percussion in the interscapular region ascribed to changes in muscle tone."

No characteristic or definite group of symptoms could be recognized as due to tracheo-bronchial tuberculosis. Respiratory symptoms due to uncomplicated tracheo-bronchial disease do not occur.



X-ray of child's chest, showing (1) primary nodule, and (2) caseous lymph nodes.

Finally, the writer discusses the question of the quantitative tuberculin reaction which he believes is important at those ages at which it is most desirable to recognize the presence, pathologic condition and significance of tracheo-bronchial tuberculosis. A marked reaction to 0.01 mg. of tuberculin (O. T.) in a child under 5 years is sufficient to warrant therapeutic and prophylactic measures, even in the absence of demonstrable lesions. "The presence of a recognizable lesion gravely emphasizes the danger, and rarely before the fifth year will the calcium shadow be other than fine and presumably labile. After the fifth year an intense reaction suggests an active lesion, especially if the calcium infiltration casts a soft shadow."

The diagnosis in the individual of tracheo-bronchial tuberculosis must rest on a demonstrable lesion, and " a definite symptom-complex can be discovered only by study of cases presenting such lesions." *F. M. McPhedran. Amer. Jour. Med. Sciences*, 1927, 173, 245.

GRADUATE COURSE IN CANCER

The Committee in charge of the Graduate Course in Cancer, mention of which has been made in previous issues of the JOURNAL, now submits its program in final form.

The large amount of interest which has already been expressed indicates that the registration will be large.

The program is as follows:

PROGRAM—GRADUATE COURSE

Tuesday, April 23rd

9:30 to 12:00

Boston Dispensary

Cancer of skin, Moles—Melanoma, Cancer of Stomach, Colon, Abdomen, Cancer of Breast, Bone Sarcoma, Cancer—Oral Cavity, Carcinoma of Uterus (Dr. Joseph C. Bloodgood Assisted by Dr. Harry F. Friedman and associates).

Massachusetts General Hospital

Cancer of Skin, Moles—Melanoma—Dr. Ernest M. Daland, Dr. A. M. Greenwood.

Cancer of Mouth, Lip and Tongue—Dr. Channing C. Simmons.

Palmer Memorial Hospital

Cancer of Skin, Moles—Melanoma—Dr. Leland S. McKittrick.

Cancer of Mouth, Lip and Tongue—Dr. George A. Leland.

12:00 to 1:30—Recess for lunch.

2:00 to 4:00

Huntington Memorial Hospital

Bone Sarcoma — Dr. Channing C. Simmons. Lympho-Blastoma—Dr. Henry Jackson, Jr., Dr. F. T. Hunter. Cancer of Nose and Throat—Dr. E. W. Herman and associates.

Boston City Hospital

Bone Sarcoma, Lympho-Blastoma, Cancer of Nose and Throat—Dr. J. J. Hepburn, Dr. Charles Lund and Dr. Paul Butler.

Children's Hospital

Malignancy in Children, Neuro-Blastoma—Dr. S. B. Wolbach. Malignancy of the Kidney—Dr. Charles Mixter. Malignant Tumors of the Ovary—Dr. William E. Ladd.

Forsyth Dental Infirmary

Cancer and precancerous lesions of oral cavity—Dr. F. P. McCarthy, Dr. H. V. Kazanjian.

7:00—Dinner—Hotel Somerset.

Speakers:—His Excellency, Governor Frank G. Allen; Dr. Robert B. Greenough, Chairman, Committee on Graduate Course in Cancer; Dr. Charles W. Hammett, President, Massachusetts Dental Society; Dr. George H. Bigelow, Commissioner, Massachusetts Department of Public Health; Dr. Joseph C. Bloodgood, Baltimore, Maryland.

Dr. John M. Birnie, President, Massachusetts Medical Society, Presiding.

Wednesday, April 24th

9:30 to 10:45

Massachusetts General Hospital

Cancer of Stomach, Intestine and Rectum—Dr. E. P. Richardson, Dr. Lincoln Davis.

Palmer Memorial Hospital

Cancer of Stomach, Intestine and Rectum — Dr. Daniel Jones, Dr. Leland S. McKittrick, Dr. W. S. McClure.

Peter Bent Brigham Hospital

Cancer of Stomach, Intestine and Rectum—Dr. David Cheever.

10:45 to 12 M.

Massachusetts General Hospital

Cancer of Genito-urinary system—Dr. J. Dellinger Barney and associates.

Palmer Memorial Hospital

Cancer of Genito-urinary system—Dr. George G. Smith.

Peter Bent Brigham Hospital

Cancer of Genito-urinary system—Dr. William C. Quinby.

12:00 to 1:30—Recess for lunch.

2 to 4:00

Pondville Hospital

Cancer Clinic—Dr. Ernest M. Daland, Dr. Grantley Taylor. Results of X-ray Therapy—Dr. Richard Dresser. Genito-urinary malignancy—Dr. Roger Graves. Cancer of Accessory Sinuses and Larynx—Dr. Carl Ernlund. Uterine Cancer—Dr. Joe V. Meigs. Malignant Lymphoma—Dr. Henry Jackson, Jr. Treatment of Pain in Cancer—Dr. John Hodgson. Demonstration—Cancer of Cervix. Demonstration—Radium and X-ray apparatus. Inspection of Hospital.

Special bus service for Pondville furnished without charge.

Massachusetts Homeopathic Hospital—Evans Auditorium

General Clinic, Early Recognition, Specific Treatment, End Results—Dr. Charles T. Howard and associates.

Carney Hospital

Carcinoma of Stomach and Intestines—Early Diagnosis—Dr. Edward J. Denning, Dr. Fred B. Lund. Cancer of Breast—End Results—Dr. Daniel F. Mahoney. Cancer of Large Intestine—Dr. A. McKay Fraser. Cancer of Cervix—Dr. Louis E. Phaneuf. Modern Radium Therapy—Dr. Charles Whelan. X-ray—Dr. Alfred J. Leary. Cancer of Lip, Breast, Stomach—Dr. William E. Browne. Inoperable Cancer—Dr. Louis F. Curran.

All are invited to attend the meeting of the Suffolk District Medical Society at the Boston Medical Library, 8 The Fenway, on Wednesday evening, April 24. Dr. Henry K. Pancoast, of Philadelphia, speaker.

Thursday, April 25th

9:30 to 11:00

Free Hospital for Women

Gynaecological Clinic, Cancer of Uterus—Dr. William P. Graves, Dr. Frank A. Pemberton.

Massachusetts General Hospital

Carcinoma of Female Genital Organs, Application of Radium—Dr. Lincoln Davis, Dr. Joe V. Meigs.

Huntington Memorial Hospital

Carcinoma of Breast—Dr. Channing C. Simmons.

11:00 to 12:00

Free Hospital for Women

Lead Therapy, Cancer of Breast—Dr. William P. Graves, Dr. Frank A. Pemberton.

Massachusetts General Hospital

Carcinoma of Breast—Dr. Robert B. Greenough, Dr. Ernest M. Daland.

Huntington Memorial Hospital

Carcinoma of Female Genital Organs—Dr. George Adams Leland.

Luncheon Meeting—Boston City Club.

1:00 to 4:00

Dr. Robert B. Greenough—Modern Cancer Therapy—A Resumé.

Dr. Shields Warren—Laboratory Diagnosis of Malignancy.

Dr. Jonathan M. Wainwright—Progress in Cancer Education in Pennsylvania.

Canti Film,—a new film which has been prepared by Dr. R. G. Canti of St. Bartholomew's Hospital, London, demonstrating new research methods in the pathology of cancer.

The Committee in charge of arrangements for this Course was listed in the JOURNAL of March 14th. Arrangements have been made to accommodate registration at the office of the Massachusetts Medical Society, 126 Massachusetts Avenue, Boston.

Through an error in the program which every physician should receive by mail, the clinic of Wednesday afternoon at the Palmer Memorial Hospital is announced as occurring at the Huntington Hospital. The clinic at the Huntington Hospital is on Thursday, April 25, in the forenoon. The announcement as it appears above is correct.

AMERICAN COLLEGE OF PHYSICIANS*

The American College of Physicians is made up of more than 2,000 prominent physicians of North America and will meet in Boston from April 8-12 to discuss recent advancements in internal medicine and associated lines, and to study the work of the Boston physicians and hospitals.

This College is not a college in the ordinary sense, but rather an organization of highly trained men, leaders in their profession, devoting their lives to the practice of internal medicine and the advancement of medical science through research. Its function is similar to that of the Royal College of Physicians of Great Britain. Not only will there be a large number of eminent authorities from this country, but also a number of distinguished Canadian Physicians. The headquarters of the Congress will be at the Hotel Statler, Boston. This will be the Thirteenth Annual Clinical Session held by the College.

The Session will be opened on Monday afternoon with addresses of welcome by Dr. David L. Edsall, Dean of Harvard Medical School; Dr. Alexander S. Begg, Dean of Boston University Medical School; Dr. A. Warren Stearns, Dean of Tufts College Medical School; Dr. John M. Birnie, President of the Massachusetts Medical Society; Dr. Lincoln Davis, President of Suffolk District Medical Society. Dr. Charles F. Martin, President of the American College of Physicians and Dean of the Faculty of McGill University, Montreal, will reply to the addresses of welcome.

Among the items of particular interest on the program are: A Symposium on Deficiencies scheduled for Monday evening, and A Symposium on the Present Status of Vaccine and Serum Prophylaxis and Therapy on Wednesday evening.

The guest of honor and chief speaker at the annual Banquet of the College will be Dr. George E. Vincent, President of the Rockefeller Foundation.

At a special evening session, Friday, April 12, the Convocational Exercises, for the conferring of Fellowships on newly elected members, will be held in the Hotel Statler Ballroom. The General Profession will be invited to this function. The Clinical Session of the College will extend through five days, April 8-12. Clinics at various hospitals will be held in the morning where cases will be shown and diagnosis and treatment discussed. In the afternoons and evenings scientific addresses will be presented at the Hotel Statler.

The hospitals offering clinical programs are: Beth Israel Hospital, Boston City Hospital, Boston Dispensary, Children's Hospital, Carney Hospital, House of the Good Samaritan, Homeopathic Hospital, Massachusetts General Hospital, New England Baptist Hospital, New England Deaconess Hospital, Peter Bent Brigham Hospital, Robert Breck Brigham Hospital, and the United States Naval Hospital.

*Complete program page 732.

CORRESPONDENCE

A TESTIMONIAL DINNER TO DR. HENRY D. CHADWICK

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

March 26, 1929.

To the Editor
NEW ENGLAND JOURNAL OF MEDICINE.

Dear Sir:

In May Dr. Chadwick is leaving us to begin work in Detroit. He is to have charge of the entire tuberculosis service in the city. It is of course with profound regret that we lose him because of his notable twenty years of service at the Westfield State Sanatorium and his contribution to the detection of juvenile tuberculosis, as a result of which an outstanding service is being offered to all school chil-

dren of the State. His work is so vital that it will be sure to carry on even without the inspiration of his leadership.

The Massachusetts Tuberculosis League and this Department are giving an opportunity to his many friends to meet him informally at dinner on April 16th and wish him well. Any of your readers desiring to attend this dinner may get in touch with this Department or Mr. Kiernan at the offices of the Massachusetts Tuberculosis League.

Yours truly,

GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

NOTICES

THE THIRD PUBLIC HEALTH INSTITUTE

FOR HEALTH OFFICERS AND OTHER PUBLIC HEALTH WORKERS

At the Massachusetts Institute of Technology, Cambridge, Massachusetts, June 24 to July 13, 1929

Conducted by the Department of Biology and Public Health of the Massachusetts Institute of Technology, with the co-operation of the Metropolitan Life Insurance Company.

The Massachusetts Association of Boards of Health has assisted in the planning of this program through a committee consisting of Doctors F. G. Curtis, F. P. Denny and V. A. Safford.

PUBLIC HEALTH INSTITUTE

The Institute aims to provide for the health officer or other qualified public health worker an opportunity to study public health procedures and to examine modern public health practices under the direction of experts in the respective fields.

Medical practitioners frequently spend brief periods with advantage in observation and study at great clinical centers. The Public Health Institute hopes to provide an equally valuable type of experience for health officers, public health nurses, and others actively engaged or interested in public health work. It will have as its main purpose, intensive instruction in the essential principles and the presentation of the best methods of modern practice in some of the important aspects of public health work.

Meetings will be held six days a week for three weeks. Mornings will usually be devoted to lectures and round table discussions or conferences on the subject matter under consideration. In the afternoons there will be laboratory exercises, clinical demonstrations or field trips.

Since the aim of the work is to assist in promoting scientific public health practice in this country, a nominal fee of only $40 will be asked. A limited number of awards of free tuition may be made in exceptional cases. For attendance for less than three weeks, a charge of $2.50 per day will be made.

Certificates for attendance will be given upon request.

REGISTRATION

Application for this work should be addressed to the Registrar, Massachusetts Institute of Technology, and if possible, such application should be made by June 15. Registration forms will be sent to each applicant, and these blanks may be returned by mail or may be presented on the first day of the session. Fees are payable in advance to H. S. Ford, Bursar.

For further information regarding the Public Health Institute, address Prof. S. C. Prescott, Department of Biology and Public Helath, Massachusetts Institute of Technology, Cambridge, Mass.

GENERAL PROGRAM

Monday, June 24

9.00 A. M.
Registration, if not previously completed by mail.

9.30 A. M.
The Plan and Purpose of the Public Health Institute. Professor S. C. Prescott, Sc.D., Head of the Department of Biology and Public Health, Massachusetts Institute of Technology.
Brief addresses are expected from
Dr. Lee K. Frankel, Vice-President, Metropolitan Life Insurance Company.
Dr. G. H. Bigelow, Commissioner of Health of Massachusetts.
Dr. F. X. Mahoney, Health Commissioner of Boston.
Mr. J. J. McGrath, Agent, Massachusetts Association of Boards of Health.

11.00 A. M.
The Examination of Milk Supplies—Standard and Other Methods.
Professor Prescott.

P. M. Demonstrations and Discussions.

Tuesday, June 25

A. M. The Administrative Control of Milk Supplies.
Professor Prescott.

P. M. Field Trip to Observe Farm Inspection and Pasteurization.

Wednesday, June 26

A. M. The Examination of Drinking Water.
Professor Prescott.
M. P. Horwood, Ph.D., Assistant Professor of Biology and Public Health, Massachusetts Institute of Technology.

P. M. Water Supplies—Purification.
Professor Horwood.
Mr. R. S. Weston, A.M., C.E., Consulting Sanitary Engineer, Boston.
Inspection of Cambridge Filtration Plant.

Thursday, June 27

A. M. Trip to Lawrence Sewage Experimental Station

P. M. Aerobic Methods of Sewage Disposal.
Professor Horwood.

Friday, June 28

A. M. Anaerobic Methods of Sewage Disposal.
Professor Horwood.

P. M. Garbage Disposal.
Professor Horwood.

Saturday, June 29

A. M. Nutrition, Its Significance and Recent Developments.

J. W. M. Bunker, Ph.D., Professor of Biochemistry and Physiology, Massachusetts Institute of Technology.

The Dental Health Program.

Dr. Percy Howe, Professor of Dental Research, Harvard Medical School.

P. M. Public Health Law.

Dr. James A. Tobey, Director of Research, Borden Sales Company, New York, N. Y.

Monday, July 1

A. M. Rural Sanitation.

Dr. C. F. Kendall, Commissioner, State Department of Health, Augusta, Maine.

P. M. Food Inspection and Storage.

Professor Prescott.

Animal Diseases in Relation to Man.

Dr. V. A. Moore, Dean, New York State Veterinary College, Ithaca, N. Y.

Tuesday, July 2

A. M. Health Centers—Pre-School Clinics.

Dr. C. F. Wilinsky, Superintendent, Beth Israel Hospital, Boston.

Visit to Health Center.

Public Health Nursing.

Miss Hazel Wedgwood, R.N., Director of Public Health Nursing, Boston Health Department.

P. M. School Health Administration.

Dr. J. A. Ceconi, Director of School Hygiene, City of Boston.

Wednesday, July 3

A. M. Sanitary Inspection—Slaughterhouses, Markets, Restaurants.

Dr. P. H. Mullowney, Director of Food Inspection, Boston Board of Health.

P. M. Public Health Education and Publicity.

Mr. B. R. Rickards, S.B., Director of Publicity, New York State Department of Health.

Friday, July 5

A. M. Vital Statistics.

E. B. Wilson, Ph.D., Professor of Vital Statistics, Harvard School of Public Health.

Professor Horwood.

P. M. Public Health Surveys.

Professor Horwood.

Appraisal Forms and Budgets.

Dr. W. F. Walker, American Public Health Association.

or

Dr. James Wallace, American Public Health Association.

Saturday, July 6

A. M. Health Department Organization, etc.

Dr. T. F. Kenney, Health Officer, Worcester.

P. M. Worcester Sewage Disposal Plant.

Monday, July 8

A. M. Diphtheria Control—Cultures and Laboratory Examinations, Administrative Procedure.

Dr. F. H. Slack, Assistant Professor of Public Health Laboratory Methods, Massachusetts Institute of Technology.

P. M. Diphtheria Prevention, Schick Testing, Toxin-Antitoxin.

Dr. Ceconi.

Tuesday, July 9

A. M. Scarlet Fever Prevention, etc., Dick Test.

Dr. E. H. Place, Director, South Department, Boston City Hospital.

P. M. Smallpox Control, etc.

Benjamin White, Ph.D., Director, State Antitoxin Laboratory, Forest Hills.

Wednesday, July 10

A. M. Tuberculosis.

Dr. S. H. Remick, Director of Division of Tuberculosis, Massachusetts State Department of Health.

Visit to West Concord Street Clinic.

P. M. Tuberculosis Control.

Dr. D. B. Armstrong, Metropolitan Life Insurance Company, New York City.

Thursday, July 11

A. M. Typhoid, etc.

Dr. Slack.

P. M. Pneumonia.

Dr. Slack.

Dr. F. T. Lord, Massachusetts General Hospital.

Friday, July 12

A. M. Poliomyelitis, Influenza, Venereal Diseases.

Dr. G. H. Bigelow, Commissioner of Health of Massachusetts.

Dr. W. E. Aycock, Harvard Poliomyelitis Commission.

Dr. H. L. Lombard, Massachusetts State Department of Health.

Dr. Nels C. Nelson, Massachusetts State Department of Health.

P. M. Epidemiological Methods.

Dr. C. L. Scamman, Deputy Commissioner of Health of Massachusetts.

Saturday, July 13

A. M. Ventilation in Relation to Respiratory Diseases.

Dr. P. H. Bryce, Ottawa, Ont.

P. M. Phases of Public Health Work Which Have Paid Best.

Dr. C. V. Chapin, Superintendent of Health, Providence, R. I.

Arrangements can be made for visits to sanatoria, laboratories of plants, etc., on July 15 and 16, if desired.

THE AMERICAN COLLEGE OF PHYSICIANS

THIRTEENTH ANNUAL CLINICAL SESSION—BOSTON, MASS., APRIL 8-12, 1929

Headquarters: Hotel Statler (Registration, Information and Clinical Assignments).

FINAL PROGRAM

The American College of Physicians—Officers and Regents, 1928-1929:

President, Charles F. Martin, Montreal, Can.

President-Elect, John H. Musser, New Orleans, La.

First Vice President, Aldred Scott Warthin, Ann Arbor, Mich.

Second Vice President, S. Marx White, Minneapolis, Minn.

Third Vice President, W. McKim Marriott, St. Louis, Mo.

Treasurer, Clement R. Jones, Pittsburgh, Pa.

Secretary-General, George Morris Piersol, Philadelphia, Pa.

Board of Regents (Including above Officers):

Term expiring 1929—Noble Wiley Jones, Portland, Ore.; D. Sclater Lewis, Montreal, Can.; Sydney R. Miller, Baltimore, Md.; William Gerry Morgan, Washington, D. C.; F. M. Pottenger, Monrovia, Calif.

Term expiring 1930—James R. Arneill, Denver, Colo.; George E. Brown, Rochester, Minn.; John A. Lichty, Clifton Springs, N. Y.; Leonard M. Murray, Toronto, Can.; Alfred Stengel, Philadelphia, Pa.

Term expiring 1931—James H. Means, Boston, Mass.; J. C. Meakins, Montreal, Can.; James Alex. Miller, New York, N. Y.; James S. McLester, Birmingham, Ala.; John Phillips, Cleveland, Ohio.

Ex-Officio—Charles G. Jennings, Detroit, Mich.

Executive Offices, 133-135 South Thirty-sixth Street, Philadelphia, Pa. E. R. Loveland, Executive Secretary.

PROGRAM

BOSTON COMMITTEES

James H. Means, General Chairman

Committee on Arrangements—James H. Means, William B. Breed, Henry A. Christian, Randall Clifford, Chester M. Jones, Elliott P. Joslin, Roger I. Lee, George R. Minot, John H. Musser, John Phillips, Joseph H. Pratt, Fritz B. Talbot, Conrad Wesselhoeft, Franklin W. White.

Committee on Hall—Franklin W. White.

Committee on Clinics—Henry A. Christian, Chester M. Jones, Elliott P. Joslin, George R. Minot, Joseph H. Pratt, Conrad Wesselhoeft.

Committee on Entertainment—Randall Clifford, William B. Breed, Fritz B. Talbot.

Ladies' Committee—Mrs. Francis W. Peabody, Chairman; Mrs. William B. Breed, Mrs. Henry A. Christian, Mrs. James H. Means, Mrs. George R. Minot, Mrs. Conrad Wesselhoeft.

INVITATION

The Massachusetts Medical and Suffolk District Medical Societies, and the Medical Schools of Harvard, Tufts and Boston Universities, have already extended to the Board of Regents of the American College of Physicians a warm invitation to hold its clinical session in the City of Boston this spring. Every Fellow, Associate and Guest of the College is included in this invitation.

Boston with its many medical schools and hospitals is an active centre not only for practice, but also for medical education and research, and it is therefore hoped that every member of the College will find something of especial interest to him.

Members of the College will also find much of non-medical interest in Boston, for it is one of the oldest and most historic cities in the United States.

It is the hope not only of the above-mentioned institutions, but also of the local Committee on Arrangements that the Boston Clinical Session of the College will be profitable and enjoyable for all those attending.

The University Club of Boston, 40 Trinity Place, has extended the courtesy and facilities of the Club to members of the American College of Physicians during their stay in Boston. The rates for double rooms are $5.00, twin beds, bath and shower; for single rooms, $3.00 and upwards. Requests for reservations or additional information should be addressed to Mr. Henry K. Doyle, Manager of the Club.

WHO MAY REGISTER

(a) All members of The American College of Physicians in good standing for 1929.

(b) All newly elected members.

(c) All applicants for membership in The College whose applications are still outstanding at the time of the Session.

(d) Members of the Suffolk District, Norfolk District and Middlesex South District Medical Societies will be admitted to all general sessions as guests of The College and, insofar as space permits, will be assigned to special clinics, laboratory demonstrations, etc.

(e) House Officers in the Hospitals participating in the program.

(f) Medical students pursuing courses in the various local colleges (students will kindly furnish evidence of matriculation when registering, they will be charged no fee whatsoever).

(g) Qualified physicians who may wish to attend this Session as visitors and who pay the nominal registration fee of $5.00, and to whom "Guest Cards" are issued.

(h) Distinguished foreign visitors; physicians engaged in teaching or in scientific investigation; members of the Public Services of the United States, its possessions and Canada; retired practitioners; (to this group all general meetings are open, and, whenever possible, admission to special clinics and demonstrations will be arranged).

Registration Blanks.—Guests will secure registration blanks at the Registration Bureau during the Session.

Reduced Railroad Fares.—Transportation to and from the Boston Clinical Session has been arranged on the Certificate Plan of fare and half fare. This applies to the railroads of the United States and Canada. Those who attend the Session will purchase going tickets at local railroad offices and at the same time request a "Certificate." This certificate, when validated by the proper officer at the Registration Bureau at Boston, will entitle members to purchase return tickets at half rate.

Reduced rates apply not only to members, but also to dependent members of their families.

Going tickets may be purchased from April 4 to 10, Certificates will be validated by a special railroad agent April 8-12, and the return tickets may be used up to and including April 17.

The Annual Banquet of the College will be held at 7 o'clock, Thursday evening, April 11, in the ballroom of the Hotel Statler. All physicians of Boston and vicinity, and visitors attending the Session, are invited with their ladies by the officers and members of The College to attend this banquet. Music will be furnished by Bert Lowe's Orchestra. Dr. George E. Vincent, President of the Rockefeller

Foundation, will deliver the principal address. Tickets for the banquet will be $5 per person. These tickets will be on sale at the Registration Bureau.

Convocation Exercises for the Conferring of Fellowships.—8:00 P. M., Friday, April 12, in the ballroom, Hotel Statler.

It is requested that all Fellows of The College and those about to be received in Fellowship be present. Newly-elected Fellows who have not yet been received in Fellowship are requested to occupy the central section of seats especially reserved for them.

The Convocation is open to physicians generally and to such of the general public as may be interested.

Symposium on Deficiencies.—This symposium, which is to take place Monday evening, should be of particular interest because of the fact that deficiencies are nowadays assuming a far more widespread and important rôle than had heretofore been anticipated. They have come into their own as factors producing acute and chronic disease on a par perhaps with infections. The Committee has secured for our program speakers who can speak with authority on a variety of aspects of this important subject. This symposium, therefore, is especially recommended to members and guests.

Present Status of Vaccine and Serum Prophylaxis and Therapy.—The address by Dr. Benjamin White on Wednesday evening, which will occupy one hour, is designed to give the Internist a rapid survey of the present status of vaccine and serum prophylaxis and therapy. Dr. White is an authority on these subjects, and can give the high spots in rapid and yet forceful fashion.

Microscopic Demonstration of Amoebae, the Stool Smears and Tissue Sections will be given by Dr. William M. James, of The Herrick Clinic, Panama, R. P. A quantity of microscopes will be loaned by courtesy of the Bausch & Lomb Optical Company, and the special demonstrations will be arranged daily from 9:00 to 12:00 A. M. at a booth, or a room, at the Hotel Statler. Those interested will note Bulletin Board announcements for further details.

The General Business Meeting of the College will be held at 4 P. M., Thursday, April 11, in the Georgian Room of the Hotel Statler. All Fellows and Masters of The College are urged to be present.

There will be the election of officers, the election of new Governors and the induction of the new President, Dr. John H. Musser, Professor of Medicine, Tulane University of Louisiana, School of Medicine.

Board and Committee Meetings.—The following meetings are scheduled as indicated. Any special meetings will be posted.

Committee on Credentials (Fellowship)	April	7,	9:00 A. M.
Committee on Credentials (Associateship)	"	7,	9:00 A. M.
Board of Regents	"	7,	2:00 P. M.
Board of Regents	"	8,	4:30 P. M.
Board of Regents	"	10,	4:30 P. M.
Board of Regents	"	12,	4:00 P. M.
Board of Governors	"	8,	10:00 A. M.
Board of Governors	"	10,	3:15 P. M.

Entertainment of Visiting Ladies.—The Ladies' Committee has arranged to have a registration desk at the Hotel Statler where visiting ladies are requested to register. The Committee plans to have a trip to Lexington and Concord, and one to Milton and the Blue Hills. Mrs. Francis W. Peabody, the chairman, will give a tea; and there will be a visit to Harvard College.

Daily Bulletin of Special Announcements will be located near the Registration Bureau and the Commercial Exhibits.

Registration Bureau.—Located at the entrance to the Ballroom Assembly Foyer of the Hotel Statler. Hours—8 A. M. to 6 P. M., daily, April 8-12.

FINAL PROGRAM

Annual Clinical Session of the American College of Physicians, April 8-12, 1929.

Monday, April 8, 1929

Opening Session, 2:30 O'clock

Hotel Statler Ballroom

1. Addresses of Welcome.
   David L. Edsall, Dean of Harvard Medical School.
   Alexander S. Begg, Dean of Boston University Medical School.
   A. Warren Stearns, Dean of Tufts College Medical School.
   John M. Birnie, President of Massachusetts Medical Society.
   Lincoln Davis, President of Suffolk District Medical Society.
2. Reply to Addresses of Welcome.
   Charles F. Martin, President of The American College of Physicians.
3. Tuberculosis: A Confession of Faith.
   Lawrason Brown, Saranac Lake, N. Y.
4. Diagnosis and Treatment of the Milder Affective Disorders.
   Lewellys F. Barker, Baltimore.
5. Juvenile Diabetes.
   I. M. Rabinowitch, Montreal.
6. Glycosuria.
   James E. Paullin, Atlanta.
7. Clinical Aspects of Paroxysmal Hypertension.
   M. C. Pincoffs, Baltimore.
8. Addison's Disease: A Clinical Study of One Hundred Cases. L. G. Rowntree and A. M. Snell, Rochester, Minn.
9. Complications and Sequelae of Chronic Ulcerative Colitis (to be read if time permits). J. A. Bargen, Rochester, Minn.

Evening Session, 8:00 O'clock

Hotel Statler Ballroom

Symposium on Deficiency Diseases

1. The Fundamental Nature of Deficiencies.
   George R. Minot, Boston.
2. Pathology of Deficiencies.
   S. Burt Wolbach, Boston.
3. Biochemistry and Physiology of Deficiencies.
   George R. Cowgill, New Haven.
4. Pernicious Anemia.
   Randolph West, New York.
5. Pathogenicity of Human Amebiasis (Lantern slides). Wm. M. James, Panama.

Tuesday, April 9, 1929

Morning, 9:00 to 12:00 O'clock

Hospital Clinics

AFTERNOON, 2:30 TO 5:00 O'CLOCK

Hotel Statler Ballroom

1. Fatigue and Infection.
   W. L. Holman, Toronto.
2. Neoplasms.
   J. B. Murphy, New York.
3. Specific Dynamic Action of Protein, Fat and Carbohydrate in Altered States of Nutrition.
   Edward H. Mason, Montreal.
4. The Relation of Neisserian Infection to the Various Types of Arthritis.
   O. H. Perry Pepper, Philadelphia.
5. The Treatment of Angina Pectoris.
   Harlow Brooks, New York.
6. The Coronary Problem.
   Arthur R. Elliott, Chicago.
7. Clinical Aspects of Trichiniasis.
   Lewis A. Conner, New York.
8. An Intensive Clinical Study of a Graphic Method of Recording Blood Pressure.
   Louis Faugeres Bishop and Louis Faugeres Bishop, Jr., New York.
9. Physical Principles of the Graphic Method of Estimating Blood Pressure. (To be read if time permits.) Clyde Brooks, University, Ala.

EVENING SESSION, 8:00 O'CLOCK

Hotel Statler Ballroom

1. Psychiatry in Relation to Medicine.
   Austen F. Riggs, Stockbridge, Mass.
2. Syphilis of the Adrenals and its Relationship to the So-called Idiopathic Addison's Disease.
   Aldred S. Warthin, Ann Arbor.
3. Lung Syphilis.
   R. I. Rizer, Minneapolis.

A SMOKER will follow this session.

WEDNESDAY, APRIL 10, 1929

MORNING, 9:00 TO 12:00 O'CLOCK

Hospital Clinics

AFTERNOON, 2:30 O'CLOCK

Hotel Statler Ballroom

1. The Treatment of General Paresis.
   Harry C. Solomon, Boston.
2. Psychiatry's Part in Preventive Medicine.
   Arthur H. Ruggles, Providence.
3. The Need of Emotional Data in the Medical History.
   John Favill, Chicago.
4. Atypical Features of Acute Coronary Occlusion.
   James B. Herrick, Chicago.
5. The Failing Heart of Middle Life.
   David Riesman, Philadelphia.
6. Hypertension.
   George C. Hale, London, Ont.
7. Undulant Fever in the United States.
   George Blumer, New Haven.
8. Delayed Hypersensitive Reactions in Man.
   Robert A. Cooke, New York.
9. Tobacco Smoking and Gastric Symptoms.
   Irving Gray, Brooklyn.
10. Enuresis in Children. (To be read if time permits.) N. T. Saxl, New York.

EVENING SESSION, 8:00 O'CLOCK

Hotel Statler Ballroom

1. Serums and Vaccines in the Prevention and Treatment of Disease.
   Benjamin White, Boston.
2. Clinico-Roentgenological Conference.
   M. C. Sosman and Associates, Boston.

THURSDAY, APRIL 11, 1929

MORNING, 9:00 TO 12:00 O'CLOCK

Hospital Clinics

AFTERNOON, 2:30 O'CLOCK

Hotel Statler Ballroom

1. The Treatment of Acute Asphyxia.
   Cecil K. Drinker, Boston.
2. The Significance of Abnormal Metabolic Features in the Management of Thyrotoxicosis.
   Walter W. Palmer, New York.
3. Can or Will the Internist Practice Preventive Medicine?
   George H. Bigelow, Boston.
4. Factors in the Prognosis of High Blood Pressure.
   W. W. Herrick, New York.
5. The Carotid Sinus Reflex (Hering); Its Use in the Diagnosis and Treatment of Certain Cardiovascular Diseases.
   C. Saul Danzer, Brooklyn.
6. Lead Poisoning from Snuff.
   Raymond J. Reitzel, Galveston.
7. A New Case of Syphilitic Tumor of the Stomach Cured By Antiluetic Treatment. (To be read if time permits.)
   M. Einhorn, New York.

The General Business Meeting of The College will be held at 4:00 in the Hotel Statler Georgian Room. All Masters and Fellows should attend.

EVENING, 7:00 O'CLOCK

Annual Banquet of The College

(Procure tickets at the registration bureau.)

Address:

George E. Vincent, President of Rockefeller Foundation.

FRIDAY, APRIL 12, 1929

MORNING, 9:00 TO 12:00 O'CLOCK

Hospital Clinics

AFTERNOON, 2:30 O'CLOCK

Hotel Statler Ballroom

1. Motion Picture: Demonstrating Its Value in Teaching Electrocardiographic Interpretations of Cardiac Arrythmias.
   Joseph B. Wolffe, Philadelphia.
2. Dr. William Dunlop and Pioneer Canadian Medicine.
   J. W. Crane, London, Ont.
3. Rheumatic Fever.
   Homer F. Swift, New York.
4. Lung Volume and Its Variations.
   J. C. Meakins, Montreal.
5. Results to be Expected in Malignant Disease Treated by Radiotherapy.
   George E. Pfahler, Philadelphia.
6. The Problem of the Nervous Patient.
   Charles H. Nielson, St. Louis.
7. Endogenous Obesity—A Misconception.
   L. H. Newburgh and M. W. Johnson, Ann Arbor.
8. Remission of Tabetic Symptoms Following Sacral Injection of Physiological Solution. (To be read if time permits.)
   A. B. Yudelson, Chicago.

EVENING SESSION, 8:00 O'CLOCK

Hotel Statler Ballroom

CONVOCATION EXERCISES

The General Profession is cordially invited. No special admission tickets are required.

1. Convocation Ceremony.
2. President's Address.
   Charles F. Martin, Montreal.

PROGRAM OF SPECIAL CLINICS AND DEMONSTRATIONS

This year the general sessions will be held in the afternoons and evenings, while clinics and demonstrations will be held in the mornings from 9:00 to 12:00.

Tickets required. Registration Blanks should be filled out and returned at once to the Executive Secretary for the most satisfactory results. Indicate the clinic you wish to attend by giving large black-face letter preceding the place or name or hospital (do not use titles, places or names), giving first and second choice for each day. Upon receipt by the Executive Secretary of your application for clinic reservations, proper tickets will be selected and held for you at the Registration Bureau at Boston. Reservations by mail cannot be made after April 5. Reservations may be made in person at the Registration Bureau on the evening preceding any clinic day.

TUESDAY, APRIL 9, 1929

A

BETH ISRAEL HOSPITAL

(330 Brookline Avenue)
(Capacity—200)

9:00- 9:20 Orthopedic Problems in Patients with Diabetes Mellitus.
Mark H. Rogers.

9:20- 9:40 Some Unusual Neurological Conditions.
Abraham Myerson.

9:40-10:00 Treatment of Diabetes and Its Complications.
Hyman Morrison.

10:00-10:20 Osteomalacia. Study in Calcium Metabolism.
Samuel Gargill.

10:20-10:40 The Clinical Significance of the Sedimentation Rate.
A. Carleton Ernstene.

10:40-11:00 Some Clinical Aspects of Bronchial Asthma.
Abraham Colmes.

11:00-11:20 Important Considerations in Urological Diagnosis in Medicine.
E. Granville Crabtree.

11:20-11:40 Endarteritis Obliterans.
Harry Linenthal.

11:40-12:00 Empyema and Lung Abscess.
Wyman Whitemore.

B

BOSTON CITY HOSPITAL

(818 Harrison Avenue)
(Capacity—250)

9:00- 9:30 The Progress of the Boston City Hospital.
John J. Dowling, Superintendent.

10:00-10:30 Treatment of Pneumonia. Demonstration of Cases.
Edwin A. Locke.

10:00-10:30 The Diagnosis of Pulmonary Tuberculosis.
Lawrason Brown, Saranac Lake.

10:30-11:00 Clinic of Unusual Cases.
Francis W. Palfrey.

11:00-11:30 Pernicious Anemia. Demonstration of Cases.
William B. Castle.

11:30-12:00 Treatment of Anemias. Demonstration of Cases.
George R. Minot.

C

BOSTON CITY HOSPITAL

THORNDIKE MEMORIAL LABORATORY

(818 Harrison Avenue)
(Capacity—80)

(Programs on Wednesday and Thursday only)

D

BOSTON CITY HOSPITAL

SOUTH DEPARTMENT

(818 Harrison Avenue)
(Capacity—16)

(Programs on Wednesday and Thursday only)

E

BOSTON DISPENSARY

(25 Bennet Street)
(Capacity—25)

9:00-10:00 Clinic by Thomas Ordway, Albany.

10:00-10:30 Arthritis.
John D. Adams.

10:30-11:00 Neurological Clinic.
A. Warren Stearns.

11:00-11:30 Heart Disease.
David Davis.

11:30-12:00 Gastro-intestinal Clinic.
Percy B. Davidson.

F

CHILDREN'S HOSPITAL

(300 Longwood Avenue)
(Capacity—75)

(Programs on Wednesday and Thursday only)

G

HOMEOPATHIC HOSPITAL

EVANS MEMORIAL CLINIC

(80 East Concord Street)
(Capacity—250)

Sterility Clinic

9:00- 9:45 The Present Status of the Sterility Problem.
S. R. Meaker.

9:45-10:30 The Role of Infection in Male Sterility.
S. N. Vose.

10:30-11:15 The Constitutional Factors in Sterility from the Clinical Standpoint.
C. H. Lawrence.

11:15-12:00 The Constitutional Factors in Sterility from the Laboratory Standpoint.
A. W. Rowe.

H

MASSACHUSETTS GENERAL HOSPITAL
(Fruit Street)
(Capacity—175)

9:00- 9:30 Diseases of the Thorax.
Frederick T. Lord.
9:30-10:00 Clinic by James E. Paulin, Atlanta.
10:00-10:30 Cases of Influenza Endocarditis.
William B. Breed.
10:30-11:00 Cardiac Cases.
Howard B. Sprague.
11:00-11:30 Endocrine Cases.
Walter Bauer and Dwight L. Sisco.
11:30-12:00 Diseases of the Lungs.
Randall Clifford.

I

NEW ENGLAND BAPTIST HOSPITAL
(85 Parker Hill Avenue)
(Capacity—50)

Non-Tuberculosis Pulmonary Lesions

9:00- 9:45 Chronic Bronchitis.
G. Philip Grabfield.
9:45-10:30 Unusual Cases of Bronchitis.
Willard S. Parker.
10:30-11:05 Fibrinous Bronchitis.
Albert A. Hornor.
11:05-11:35 Postural Drainage in Pulmonary Diseases.
Lewis M. Hurxthal.
11:35-12:00 Discussion of Non-Tuberculosis Pulmonary Lesions.
George S. C. Badger.

J

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—125)

9:00- 9:45 Hyperthyroidism.
F. H. Lahey, H. M. Clute and L. M. Hurxthal.
9:45-10:15 Thyro-cardiac Disease.
F. H. Lahey, H. M. Clute and L. M. Hurxthal.
10:15-11:00 Diabetic Class Teaching. Introduction to Diabetic Diet.
E. P. Joslin.
11:00-12:00 Vascular Disease in Diabetic Legs.
H. F. Root, Daniel F. Jones, L. S. McKittrick and I. K. Bogan.

K

PETER BENT BRIGHAM HOSPITAL
(721 Huntington Avenue)
(Capacity—225)

9:00-10:00 Diagnosis of Certain Forms of Heart Disease.
Lewis A. Conner, New York.
10:00-10:30 Chronic Myocardial Disease.
Henry A. Christian.
10:30-11:00 Results of Treatment of Duodenal Ulcer.
E. S. Emery.
11:00-11:30 Some Consideration on the Relation of Cardio-Renal System to Surgery of the Urinary Organs.
William C. Quinby.
11:30-12:00 Bronchoscopy in Lung Disease.
Lyman G. Richards.

L

ROBERT BRECK BRIGHAM HOSPITAL
(125 Parker Hill Avenue)
(Capacity—50)
(Programs on Wednesday and Thursday only)

M

UNITED STATES NAVAL HOSPITAL
(Broadway, Chelsea)
(Capacity—20)

Program in charge of Capt. F. L. Pleadwell, M. C., U. S. N.
9:00-10:00 Presentation of medical cases in the conference room of the hospital.
10:00-12:00 Ward rounds in charge of a ward medical officer. (For these there will be four sections of five men each.)

N

CARNEY HOSPITAL
(Old Harbor, South Boston)
(Capacity—75)
(Programs on Wednesday, Thursday and Friday only)

O

HOUSE OF THE GOOD SAMARITAN
(Corner Francis and Binney Streets)
(Capacity—50)
(Program on Thursday only)

P

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—30)

8:00- 9:00 Demonstration of Chemical, X-ray and Pathological Laboratories. (Group of 30 to be subdivided into three sections of 10.)

Q

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—30)

8:00- 9:00 Ward visits with outline of organization of diabetic, gastro-intestinal and thyroid clinics. (Group of 30 to be subdivided into three sections of 10.)

WEDNESDAY, APRIL 10, 1929

A

BETH ISRAEL HOSPITAL
(330 Brookline Avenue)
(Capacity—200)
(Programs on Tuesday and Friday only)

B

BOSTON CITY HOSPITAL

(818 Harrison Avenue)

(Capacity—250)

9:00- 9:30 Gastro-intestinal Cases.
Franklin W. White.

9:30-10:00 Cardiac Cases.
William H. Robey.

10:00-10:30 Endocarditis.
George Blumer, New Haven.

10:30-11:00 Fluoroscopic Diagnosis in Chest Conditions.
Harold Dana.

11:00-11:30 The Surgical Treatment of Pulmonary Tuberculosis. Demonstration of Cases.
Edward D. Churchill.

11:30-12:00 Hypertension and Arteriosclerosis. Demonstration of Cases.
Soma Weiss.

C

BOSTON CITY HOSPITAL
THORNDIKE MEMORIAL LABORATORY

(818 Harrison Avenue)

(Capacity—80)

10:30-12:30 Demonstration of Researches Concerning the Following Topics:

Dr. Castle and associates—Anemia.
Dr. Jackson and associates—Malignant Tumors.
Dr. Lawrence and associates—The Physiology and Pathology of White Cells.
Dr. Lennox—Epilepsy.
Dr. Minot and associates—The Blood.
Dr. Nye and associates—Bacteriological Problems.
Dr. Wearn and associates—The Capillaries.
Dr. Weiss and associates—Vascular Problems.

D

BOSTON CITY HOSPITAL
SOUTH DEPARTMENT

(818 Harrison Avenue)

(Capacity—16)

9:00-12:00 Ward visits on (1) diphtheria, (2) scarlet fever, (3) a few of the minor groups such as chickenpox, mumps, measles and whooping cough.
Edwin H. Place and Associates.

E

BOSTON DISPENSARY

(25 Bennet Street)

(Capacity—25)

9:00-10:00 Clinic by James S. McLester, Birmingham, Ala.

10:00-10:30 Obesity.
Mark Falcon-Lesses.

10:30-11:00 Essential Hypertonia.
David Ayman.

11:00-11:30 Diabetes.
James H. Townsend.

11:30-12:00 Tuberculosis.
H. Louis Kramer.

F

CHILDREN'S HOSPITAL

(300 Longwood Avenue)

(Capacity—75)

9:00- 9:30 Sepsis Bone and Joint.
Robert B. Osgood.

9:30- 9:50 Allergic Manifestations in Children.
Kenneth D. Blackfan.

9:50-10:10 Treatment of Acute Cerebral Edema.
Charles F. McKhann.

10:10-10:40 Urinary Obstruction.
Charles G. Mixter.

10:40-11:10 Acid Base Factors in Tetany (Motion Picture).
James L. Gamble.

11:10-11:30 Xanthomatosis (Christian Syndrome).
Louis K. Diamond.

11:30-12:00 Neurology in Children.
Bronson Crothers.

G

HOMEOPATHIC HOSPITAL
EVANS MEMORIAL CLINIC

(80 East Concord Street)

(Capacity—250)

Endocrine Clinic

9:00- 9:45 Certain Pertinent Factors in the Differential Diagnosis of Endocrine Disease.
A. W. Rowe.

9:45-10:30 Diagnosis as a Prerequisite for the Treatment of Endocrine Pathology.
C. H. Lawrence.

10:30-11:15 Eye Findings in Endocrine Disorders.
W. D. Rowland.

11:15-12:00 The Ménière Syndrome.
D. W. Drury.

H

MASSACHUSETTS GENERAL HOSPITAL

(Fruit Street)

(Capacity—175)

9:00- 9:30 Demonstration of Medical Cases.
William B. Robbins.

9:30-10:00 Clinic by Lewellys F. Barker, Baltimore.

10:00-10:30 Diseases of Children.
Fritz B. Talbot and Harold L. Higgins.

10:30-11:30 Clinico-pathological Conference.
Richard C. Cabot and Tracy B. Mallory.

11:30-12:00 Demonstration of Surgical Cases.
Lincoln Davis.

I

NEW ENGLAND BAPTIST HOSPITAL

(85 Parker Hill Avenue)

(Capacity—50)

9:00- 9:30 Functional Disease of the Colon Simulating Other Abdominal Diseases and Cardiac Diseases.
Sara M. Jordan.

9:30-10:00 Treatment of Ulcer Duodenal and Gastric.
Everett D. Kiefer.

10:00-10:30 Infectious Colitis.
Albert A. Hornor.

10:30-11:00 Alcohol Injection in Angina Pectoris.
Richard Cattell.

11:00-11:30 Types of Heart Disease.
Lewis M. Hurxthal.
11:30-12:00 Pre-operative Findings in Congenital Dislocation of the Hip.
Robert Soutter.

J

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—125)

9:00- 9:30 Ophthalmologic Diabetic Cases.
L. P. Tingley and J. H. Waite.
9:30- 9:50 Pedigreed Diabetics.
E. P. Joslin, H. F. Root, P. White and W. S. Curtis.
9:50-10:15 Diabetic Dentistry, Diabetic Laryngology, After Effects of Radium in Benign Pelvic Surgery.
H. Kent, L. Richards and F. Pemberton.
10:15-11:00 Diabetic Class Teaching. Diet Complications of Diabetes.
F. G. Brigham.
11:00-11:30 Colitis and Cancer of the Colon.
D. F. Jones.
11:30-12:00 Colonic Disease Simulating Other Disorders.
S. M. Jordan.

K

PETER BENT BRIGHAM HOSPITAL
(721 Huntington Avenue)
(Capacity—225)

9:00-10:00 Cardiac Disease, the Result of Infectious Processes.
James B. Herrick, Chicago.
10:00-10:30 Gallbladder Disease.
Channing Frothingham.
10:30-11:00 Bronchial Asthma.
I. Chandler Walker.
11:00-11:30 Anemia.
William P. Murphy.
11:30-12:00 Thrombophlebitis.
John Homans.

L

ROBERT BRECK BRIGHAM HOSPITAL
(125 Parker Hill Avenue)
(Capacity—50)

9:00-10:00 Classification of Arthritis with X-ray Demonstrations.
Louis M. Spear.
10:00-12:00 Orthopedic Principles in the Treatment of Chronic Arthritis.
Loring T. Swaim.

M

UNITED STATES NAVAL HOSPITAL
(Broadway, Chelsea)
(Capacity—20)

Program in charge of Capt. F. L. Pleadwell, M. C., U. S. N.
9:00-10:00 Presentation of medical cases in the conference room of the hospital.
10:00-12:00 Ward rounds in charge of a ward medical officer. (For these there will be four sections of five men each.)

N

CARNEY HOSPITAL
(Old Harbor, South Boston)
(Capacity—75)

9:00- 9:40 Peptic Ulcer.
Daniel F. Mahoney.
9:40-10:15 Diabetes.
Charles W. Finnerty.
10:15-10:50 Cholecystitis.
Francis J. Nash.
10:50-11:25 Cardiac Cases.
Daniel J. Hogan.
11:25-12:00 Ear, Nose and Throat in Medicine.
William J. Sheehan.

O

HOUSE OF THE GOOD SAMARITAN
(Corner Francis and Binney Streets)
(Capacity—50)
(Program on Thursday only)

P

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—30)

8:00- 9:00 Demonstration of Chemical, X-ray and Pathological Laboratories. (Group of 30 to be subdivided into three sections of 10.)

Q

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—30)

8:00- 9:00 Ward visits with outline of organization of diabetic, gastro-intestinal and thyroid clinics. (Group of 30 to be subdivided into three sections of 10.)

THURSDAY, APRIL 11, 1929

A

BETH ISRAEL HOSPITAL
(330 Brookline Avenue)
(Capacity—200)
(Programs on Tuesday and Friday only)

B

BOSTON CITY HOSPITAL
(818 Harrison Avenue)
(Capacity—250)

9:00- 9:15 A Case Illustrating the Value of the Electrocardiogram.
James M. Faulkner.
9:15- 9:30 Epilepsy.
William G. Lennox.
9:30-10:00 Cardiac Cases.
Edward N. Libby, Cadis Phipps, Thomas J. O'Brien and Joseph M. Lynch.
10:00-10:30 Diseases of the Thyroid.
Walter W. Palmer, New York.
10:30-11:00 Diseases of the Coronary Vessels. Demonstration of Cases.
Joseph T. Wearn.
11:00-11:30 Peptic Ulcer.
Maurice Fremont-Smith.
11:30-12:00 Neurological Cases.
Stanley Cobb.

C

BOSTON CITY HOSPITAL
THORNDIKE MEMORIAL LABORATORY
(818 Harrison Avenue)
(Capacity—80)

10:30-12:30 Demonstration of Researches Concerning the Following Topics:
Dr. Castle and associates—Anemia.
Dr. Jackson and associates—Malignant Tumors.
Dr. Lawrence and associates—The Physiology and Pathology of White Cells.
Dr. Lennox—Epilepsy.
Dr. Minot and associates—The Blood.
Dr. Nye and associates—Bacteriological Problems.
Dr. Wearn and associates—The Capillaries.
Dr. Weiss and associates—Vascular Problems.

D

BOSTON CITY HOSPITAL
SOUTH DEPARTMENT
(818 Harrison Avenue)
(Capacity—16)

9:00-12:00 Ward visits on (1) diphtheria, (2) scarlet fever, (3) a few of the minor groups such as chickenpox, mumps, measles and whooping cough.
Edwin H. Place and Associates.

E

BOSTON DISPENSARY
(25 Bennett Street)
(Capacity—25)

9:00-10:00 Clinic by George Morris Piersol, Philadelphia.
10:00-10:30 Bronchiectasis.
William Dameshek.
10:30-11:00 Psychalgia.
Joseph H. Pratt.
11:00-11:30 Chronic Pancreatic Disease.
Bert B. Hershenson.
11:30-12:00 Nephrosis.
Robert W. Buck.

F

CHILDREN'S HOSPITAL
(300 Longwood Avenue)
(Capacity—75)

9:00- 9:30 Principles of Treatment of Tuberculosis Joints.
Robert B. Osgood.
9:30-10:00 Acute Poliomyelitis (Motion Picture).
Charles F. McKhann.
10:00-10:20 Treatment of Hemophilia.
R. Cannon Eley and Stewart Clifford.
10:20-10:40 Empyema.
Henry W. Hudson.
10:40-11:00 Juvenile Myxedema.
Gerald N. Hoeffel and H. Strauss.
11:00-11:30 Splenic Anemia in Childhood (Banti's Type).
James M. Baty.
11:30-12:00 Neurology in Infants.
Bronson Crothers.

G

HOMEOPATHIC HOSPITAL
EVANS MEMORIAL CLINIC
(80 East Concord Street)
(Capacity—250)
GENERAL MEDICAL CLINIC

9:00- 9:45 The Heart in Pregnancy.
W. D. Reid.
9:45-10:30 Intestinal Migraine.
C. W. McClure.
10:30-11:15 Paralysis Agitans and the Parkinsonian Syndrome.
N. H. Garrick.
11:15-12:00 Bronchoscopy in Acute Lung Abscesses.
L. R. Johnson.

H

MASSACHUSETTS GENERAL HOSPITAL
(Fruit Street)
(Capacity—175)

9:00- 9:30 Demonstration of Medical Cases.
Gerald Blake.
9:30-10:00 Clinic by O. H. Perry Pepper, Philadelphia.
10:00-10:30 Diseases of the Thyroid.
James H. Means and Willard O. Thompson.
10:30-11:00 Presentation of Surgical Cases.
Edward P. Richardson.
11:00-11:30 Diabetes.
Roy R. Wheeler.
11:30-12:00 Anaphylaxis.
Francis M. Rackemann.

I

NEW ENGLAND BAPTIST HOSPITAL
(85 Parker Hill Avenue)
(Capacity—50)

9:00- 9:30 Raynaud's Disease.
Albert A. Hornor.
9:30-10:00 Fungus Infection of the Skin, Particularly Diabetic.
Arthur M. Greenwood and C. Guy Lane.
10:00-10:30 Arthritis.
G. Edmund Haggart.
10:30-11:00 Management of Psychoneuroses.
Joseph H. Pratt.
11:00-11:30 Pyelitis of Pregnancy Complicated by Toxemia of Pregnancy and Followed by Nephritis and Hypertension.
E. Granville Crabtree.
11:30-12:00 Treatment of Toxemia of Pregnancy by Plasmophoresis.
Frederick C. Irving.

J

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—125)

9:00- 9:30 Arteriosclerotic Heart Disease in Nondiabetics.
B. E. Hamilton.
9:30- 9:45 Arteriosclerotic Heart Disease in Diabetics.
H. F. Root.

9:45-10:15 Diabetic Pathology.
Shields Warren.
10:15-11:00 Medical Clinic.
R. I. Lee.
11:00-12:00 Cured Cancer
of the Stomach—F. B. Lund.
of the Colon—D. F. Jones.
of the Thyroid—F. H. Lahey.
of the Uterus—G. A. Leland, Jr.

K

PETER BENT BRIGHAM HOSPITAL
(721 Huntington Avenue)
(Capacity—225)

9:00-10:00 Mitral Stenosis.
David Riesman, Philadelphia
10:00 10:30 Signs of Persisting Infection in Acute Rheumatic Fever.
Clifford L. Derick.
10:30-11:00 Hemorrhagic Nephritis.
James P. O'Hare.
11:00-11:30 A Surgeon's Views of the Treatment of Peptic Ulcer.
David Cheever.
11:30-12:00 Neurosurgical Conditions.
Harvey Cushing.

L

ROBERT BRECK BRIGHAM HOSPITAL
(125 Parker Hill Avenue)
(Capacity—50)

9:00-10:00 Results of Operative Procedure in Chronic Arthritis
Philip D. Wilson.
10:00-10:30 Endocrine Elements in Arthritis.
Howard K. Thompson.
10:30-11:30 Misinterpretations of Some Abnormalities Present in the Gastrointestinal Tract of Chronic Disease Patients.
H. Archibald Nissen.

M

UNITED STATES NAVAL HOSPITAL
(Broadway, Chelsea)
(Capacity—20)

Program in charge of Capt. F. L. Pleadwell, M. C., U. S. N.

9:00-10:00 Presentation of medical cases in the conference room of the hospital.
10:00-12:00 Ward rounds in charge of a ward medical officer. (For these there will be four sections of five men each.)

N

CARNEY HOSPITAL
(Old Harbor, South Boston)
(Capacity—75)

9:00-10:00 Pregnancy and Heart Disease.
Louis E. Phaneuf and Edward J. Denning.
10:00-10:40 Gallbladder Disease.
Fred B. Lund.
10:40-11:20 Pancreatitis.
William E. Browne.
11:20-12:00 Neurological Cases.
William V. McDermott.

O

HOUSE OF THE GOOD SAMARITAN
(Corner Francis and Binney Streets)
(Capacity—50)

9:00-12:00 Clinical demonstrations and discussion of etiology, signs, symptoms and treatment of rheumatic heart disease.
William B. Breed, Howard B. Sprague and T. Duckett Jones.

P

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—30)

8:00- 9:00 Demonstration of Chemical, X-ray and Pathological Laboratories. (Group of 30 to be subdivided into three sections of 10.)

Q

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—30)

8:00- 9:00 Ward visits with outline of organization of diabetic, gastro-intestinal and thyroid clinics. (Group of 30 to be subdivided into three sections of 10.)

FRIDAY, APRIL 12, 1929

A

BETH ISRAEL HOSPITAL
(330 Brookline Avenue)
(Capacity—200)

9:00- 9:25 The Circulatory Response to Hyperthyroidism and Myxedema.
Herrman L. Blumgart.
9:25- 9:50 Problems in the Treatment of Neurosyphilis.
Harry C. Solomon.
9:50-10:15 The Schilling Index of the Blood in Infectious Diseases.
William Dameshek.
10:15-10:45 Latent Hyperthyroidism Masked as Heart Disease.
Samuel A. Levine.
10:45-11:10 Irritability of the Colon. Clinical and X-ray Observations.
Percy B. Davidson.
11:10-11:40 Carcinoma of the Duodenum.
Isaac Jankelson.
11:40-12:00 The Value of Uterography in Medical Conditions.
Samuel Robins.

B

BOSTON CITY HOSPITAL
(818 Harrison Avenue)
(Capacity—250)

9:00- 9:15 Gastrointestinal Cases.
Percy Davidson.
9:15- 9:30 Liver Disease.
John S. Lawrence.
9:30-10:00 Cases of Disease of the Hemopoietic System.
Ralph C. Larrabee.
10:00-10:30 Hypertension.
L. H. Newburgh, Ann Arbor.
10:30-11:00 Lymphoblastoma. Demonstration of Cases.
Henry Jackson, Jr.

11:00-11:30 Nephritis.
William Ohler.
11:30-12:00 Carcinoma of the Head of the Pancreas. Demonstration of Cases.
Irving J. Walker.

C

BOSTON CITY HOSPITAL
THORNDIKE MEMORIAL LABORATORY
(818 Harrison Avenue)
(Capacity—80)

(Programs on Wednesday and Thursday only)

D

BOSTON CITY HOSPITAL
SOUTH DEPARTMENT
(818 Harrison Avenue)
(Capacity—16)
(Programs on Wednesday and Thursday only)

E

BOSTON DISPENSARY
(25 Bennet Street)
(Capacity—25)
9:00-10:00 Clinic by John H. Musser, New Orleans.
10:00-10:30 Neurosyphilis.
Arthur Berk.
10:30-11:00 Neurasthenia.
Joseph H. Kaplan.
11:00-11:30 Bronchoscopic Clinic.
Louis E. Wolfson.
11:30-12:00 Domiciliary Medicine in Clinical Teaching.
Isadore Olef and Charles Korb.

F

CHILDREN'S HOSPITAL
(300 Longwood Avenue)
(Capacity—75)
(Programs on Wednesday and Thursday only)

G

HOMEOPATHIC HOSPITAL
EVANS MEMORIAL CLINIC
(80 East Concord Street)
(Capacity—250)
ENDOCRINE CLINIC II
9:00- 9:45 A Comparison of Depressants of the Central Nervous System.
W. L. Mendenhall.
9:45-10:30 Follicular Hormone.
J. L. Janney.
10:30-11:15 Physiological Results of Endocrine Therapy in Controlled Cases.
R. G. Hoskins.
11:15-12:00 The Diagnostic Significance of Insulin Efficiency.
Helmuth Ulrich.

H

MASSACHUSETTS GENERAL HOSPITAL
(Fruit Street)
(Capacity—175)
9:00-9:30 Neurological Clinic.
James B. Ayer.
9:30-10:00 Clinic by J. C. Meakins, Montreal.
10:00-10:30 Presentation of Surgical Cases.
Charles A. Porter.
10:30-11:00 Gastro-intestinal Cases.
Chester M. Jones.
11:00-11:30 Indications for Splenectomy.
Arlie V. Bock.
11:30-12:00 Cases of Pernicious Anemia.
Wyman Richardson.

I

NEW ENGLAND BAPTIST HOSPITAL
(85 Parker Hill Avenue)
(Capacity—50)
9:00- 9:30 Non-operative Measures in Thyroid Disease.
Frank H. Lahey.
9:30-10:00 Types of Heart Disturbances in Thyroid Disease and Treatment.
Lewis M. Hurxthal.
10:00-10:30 Diabetic Coma and Primary Hyperthyroidism.
Albert A. Hornor.
10:30-11:00 Histological Changes in the Thyroid Following Iodine Administrations with Illustrating Slides.
Richard B. Cattell.
11:00-11:30 Interpretation of Basal Metabolism Readings in the Diagnosis of Thyroid Disease.
Lewis M. Hurxthal.
11:30-12:00 Diagnosis of Substernal Goiter.
Howard M. Clute.

J

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—125)
9:00- 9:30 X-ray Demonstrations and Discussions. Diaphragmatic Hernia. Tuberculosis in Diabetes.
L. B. Morrison.
9:30-10:00 Orthopedics and Internal Medicine.
M. Rogers.
10:00-10:15 Remarkable Cases.
F. G. Brigham.
10:15-10:45 Diabetic Class Teaching. Insulin.
E. P. Joslin.
10:45-11:00 Diabetic Children.
P. White.
11:00-11:30 Diabetic Dermatology.
A. M. Greenwood.

K

PETER BENT BRIGHAM HOSPITAL
(721 Huntington Avenue)
(Capacity—225)
9:00-10:00 Hypertension.
Charles F. Martin, Montreal.
10:00-10:30 Vascular Disease in Diabetes Mellitus.
Reginald Fitz.
10:30-11:00 Treatment of Certain Types of Cardiac Arrhythmia.
Samuel A. Levine.
11:00-11:30 Treatment of Trifacial Neuralgia.
Gilbert Horrax.
11:30-12:00 Diuretics.
Henry A. Christian.

L

ROBERT BRECK BRIGHAM HOSPITAL
(125 Parker Hill Avenue)
(Capacity—50)
(Programs on Wednesday and Thursday only)

M

UNITED STATES NAVAL HOSPITAL
(Broadway, Chelsea)
(Capacity—20)

Program in charge of Capt. F. L. Pleadwell, M. C., U. S. N.

9:00-10:00 Presentation of medical cases in the conference room of the hospital.

10:00-12:00 Ward rounds in charge of a ward medical officer. (For these there will be four sections of five men each.)

N

CARNEY HOSPITAL
(Old Harbor, South Boston)
(Capacity—75)

9:00-10:00 Thymus in Infants.
Paul J. Jakmauh and Jeffrey Leary.

10:00-10:40 Peritonitis.
Archie McK. Fraser.

10:40-11:20 Early Diagnosis and Treatment of Bladder Malignancies.
Roger C. Graves.

11:20-12:00 Hypertension.
Louis F. Curran.

O

HOUSE OF THE GOOD SAMARITAN
(Corner Francis and Binney Streets)
(Capacity—50)
(Program on Thursday only)

P

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—30)

8:00- 9:00 Demonstration of Chemical, X-ray and Pathological Laboratories. (Group of 30 to be subdivided into three sections of 10.)

Q

NEW ENGLAND DEACONESS HOSPITAL
(16 Deaconess Road)
(Capacity—30)

8:00- 9:00 Ward visits with outline of organization of diabetic, gastro-intestinal and thyroid clinics. (Group of 30 to be subdivided into three sections of 10.)

REPORT AND NOTICES OF MEETINGS

PLYMOUTH DISTRICT MEDICAL SOCIETY

There was a well attended meeting at the Moore Hospital of the Plymouth District Medical Society on March 21, 1929.

The meeting was opened by the President of the Society, Dr. Thomas H. McCarthy. After the records of the previous meeting were read, Dr. McCarthy introduced Dr. John Bartol of Boston, who talked at length on the drive for funds, for the new building of the Massachusetts Medical Society, in conjunction with the Boston Medical Library. His talk was very instructive and very interesting. Dr. David B. Tuholski moved, that a committee be appointed by the president, to solicit each individual doctor, to contribute toward the building fund.

Letters were received from Dr. John Birnie and Dr. Sammuel Woodward, pertaining to legislative matters. Dr. George A. Moore chairman of the legislative committee made his report. The vaccination bill and the chiropractor bill were discussed. Dr. John J. McNamara read a section of an article in the Boston Globe, speaking about the chiropractor bill.

This being the last meeting before the annual meeting; before the election of officers for the ensuing year, nominations were in order for election of two members of the Society, to act on the nominating committee. Dr. R. B. Rand of No. Abington, and Dr. J. Edmund Brown of Plymouth were elected to serve on this committee. The third member being appointed by the president and he appointed Dr. John J. McNamara of Brockton. This nominating committee, consisted of Dr. John J. McNamara, chairman and Dr. R. B. Rand and Dr. J. Edmund Brown.

Dr. McCarthy then introduced Dr. J. Holbrook Shaw School physician of Plymouth, who read a very beautiful eulogy on his father, Dr. John Joseph Shaw of Plymouth. Although Dr. John Joseph Shaw was not a member of the Massachusetts Medical Society, he was a member of the Massachusetts Homeopathic Society and the relation between the two societies are so pleasant and so congenial, it was deemed fitting, that this eulogy should be read by the son of this good man. The next eulogy was read by Dr. Joseph Frame on Dr. Charles E. Knight of Rockland. It was a very fine eulogy and was very well received.

Dr. T. H. McCarthy, president of the Society, then took up the literary features of the program. He introduced to the members, Dr. Grant E. Ward of Baltimore, Maryland, who has been an assistant of Dr. Howard E. Kelly, professor of Gynecology of the Johns Hopkins University, who took for his theme, "Some Important Considerations of Electro-Surgery" His paper was a complete and instructive exposition of the subject. Dr. Halsey Loder of the Boston City Hospital, led the discussion following the paper on "Electro-Surgery". Dr. Ward showed some very good slides, showing the advancement in this line of work.

Dr. George A. Moore, was then introduced and showed a moving-picture film, with the surgical treatment, from start to finish, on a "Carcinoma of the Breast," of a male patient, that he had operated on.

After the moving-picture film, all the society present were guests at a delightful luncheon, served under the direction of Mrs. George A. Moore at the home of Dr. Moore.

It was one of the best meetings of the year.

Those present were the following: Dr. Thomas H. McCarthy, president; Dr. Alexander McRobbie; Dr. Howard C. Reed, Whitman; Dr. P. A. Levitt; Dr. D. T. Shaw, Plymouth; Dr. C. E. Lovell, Whitman; Dr. Charles Hammond, Hanover; Dr. Anthony Champ; Dr. A. M. Lemay; Dr. John Bartol, Boston; Dr. David W. Pope; Dr. William Hunt, Bridgewater; Dr. Jonas Bacon; Dr. Walter H. Pulsifer, Whitman; Dr. R. J. LeBeau; Dr. Fred. F. Weiner; Dr. Ralph C.

McLeod; Dr. Faxon, Stoughton; Dr. H. Maxfield, State Farm; Dr. Swanson, State Farm; Dr. J. Weller, State Farm; Dr. M. Gosian; Dr. Shultz, State Farm; Dr. Halsey Loder, Boston; Dr. E. E. Goodwin; Dr. Charles G. Miles; Dr. N. Noyes; Dr. Frederick Murdock; Dr. Andrew Gorman; Dr. William G. Walker, Brockton Hospital; Dr. Bornstein, Brockton Hospital; Dr. F. H. Corey, Rockland; Dr. W. B. Bannerman, East Bridgewater; Dr. H. L. Doherty, Stoughton; Dr. R. B. Rand, No. Abington; Dr. Joseph Phaneuf; Dr. Noyes, Duxbury; Dr. William Buck, Randolph; Dr. Oliver H. Howe, Cohasset; Dr. M. F. Barrett; Dr. Charles D. McCann; Dr. Roy F. Littlehale, Plymouth County Hospital; Dr. David Brown, Plymouth; Dr. J. R. Shaw; Dr. David Kane, North Easton; Dr. Joseph Frame, Randolph; Dr. D. H. Livermore, Foxboro; Dr. A. C. Smith; Dr. Sammuel Goddard; Dr. John J. McNamara.

CHARLES G. MILES.

COMBINED MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY AND THE CERTIFIED MILK PRODUCERS' ASSOCIATION

A combined meeting of the New England Pediatric Society and the Certified Milk Producers' Association of Metropolitan Boston will be held at the Boston Medical Library, 8 The Fenway, on Friday, April 12, 1929, at 8:15 P. M.

The following papers will be presented:

1. The Present Standards of Certified Milk in Boston, Richard S. Eustis, M.D., Secretary of the Medical Milk Commission of Boston, Inc.

2. Recent Advances in the Chemistry of Nutrition, H. C. Sherman, M.D., Professor of Food Chemistry, Columbia University, New York.

Light refreshments will be served after the meeting.

EDWIN T. WYMAN, M.D., *President.*
RANDOLPH K. BYERS, M.D., *Secretary.*

NEW ENGLAND HEART ASSOCIATION

A joint meeting of the Hampden District Medical Society and the New England Heart Association will be held in the Supper Room of the Kimball Hotel, Springfield, Mass., on Tuesday, Apr. 16, 1929, at 4 P. M.

1. Regular business and election of officers for the ensuing year.

2. Cardiac Adequacy for Major Surgical or Obstetrical Procedures. Dr. Samuel A. Levine, Boston.

Discussion by Dr. J. M. Birnie and Dr. F. B. Sweet.

3. Coronary Artery Disease. Dr. William H. Robey, Boston.

Discussion by Dr. E. A. Bates and Dr. G. L. Steele.

SOCIETY MEETINGS

Combined Meeting of the Boston Medical Library, the Suffolk District Medical Society, the Middlesex South District Medical Society and the Norfolk District Medical Society (at Boston Medical Library at 8:15)

April 24, 1929—Annual meeting. Speaker, Dr. Walton Martin, New York City. Title to be announced later.

The medical profession is cordially invited to attend this meeting.

April 4—Massachusetts General Hospital, Staff Meeting. Complete notice appears on page 685, issue March 28.

April 12—Combined meeting of the New England Pediatric Society and the Certified Milk Producers' Association. Complete notice appears elsewhere on this page.

April 16—New England Heart Association. Detailed notice appears elsewhere on this page.

May 5-10—First International Congress on Mental Hygiene. Complete notice appears on page 411, issue of February 21.

June 13—International Hospital Congress. Complete notice appears on page 212, issue of January 24.

July 9—American Heart Association. Scientific Meeting from 2 to 6 P. M. in the Auditorium of the Woman's Club, 448 Taylor Street, between 12th and 13th Streets, Portland, Oregon.

October 7-19—New York Academy of Medicine. Detailed notice appears on page 468, issue of February 28.

DISTRICT MEDICAL SOCIETIES

Barnstable District Medical Society

Meeting: May 2, 1929.

Bristol North District Medical Society

April 18, 1929—Spring meeting.

Essex North District Medical Society

May 1, 1929 (Wednesday)—Annual meeting at Lawrence General Hospital, One Garden Street, Lawrence, at 12:30 P. M. (Telephone 5156.)

May 2, 1929 (Thursday)—Censors meet at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M. (Tel. 3430.)

Candidates should present their diplomas one week in advance to the Secretary, J. Forrest Burnham, M.D., 567 Haverhill Street, Lawrence.

Essex South District Medical Society

Wednesday, April 3, 1929—Essex Sanatorium. Clinic at 5 P. M. Supper at 7 P. M. Speaker: Dr. Fred Albee of New York. Subject: Automatic Machinery in Bone Surgery. Discussion from the Floor.

Thursday, May 2, 1929—Censors meet at Salem Hospital, 3:30 P. M. for examination of candidates. Candidates should apply to the Secretary, (Dr. R. E. Stone, Beverly) at least one week prior.

Tuesday, May 14, 1929—Annual Meeting. The Tavern, Gloucester. Speaker: Dr. O. F. Carr, Beverly, Trip around World, Illustrated. Ladies invited. Dancing.

Franklin District Medical Society

Meeting will be held on the second Tuesday of May.

Middlesex East District Medical Society

The following schedule has been arranged:

May—Melrose.

Subjects and speakers to be arranged by committees in each city or town.

Middlesex North District Medical Society

The annual meeting will be held the last Wednesday in April.

Middlesex South District Medical Society

April, 1929—Annual meeting. Definite date to be announced later.

Norfolk District Medical Society

Below are the proposed meetings of the Norfolk District Medical Society for the 1928-29 Season. The schedule below will be adhered to as strictly as possible. The carrying out of the proposed plan will, of course, depend upon the acceptances of invitations extended to the speakers. Minor changes may be necessary.

May—Annual meeting program to be announced.

The Censors of the Society meet May 9, 1929, at the Roxbury Masonic Temple, Warren Street, Roxbury, at 1 P M., for the examination of candidates.

Plymouth District Medical Society

April meeting at the Commercial Club, Brockton, April 18th, at 6 P. M. Annual Oration by Dr. Ralph C. McLeod, Orator; dinner.

Suffolk District Medical Society

See Combined Meeting in previous column.

Worcester District Medical Society

April 10, 1929—Grafton State Hospital. Program to be announced.

May 8, 1929—Annual meeting. Worcester Country Club.

Worcester North District Medical Society

Annual meeting the fourth Tuesday in April.